

Test Bank for Algebra and Trig 11th Larson

Section 1.1 - Graphs of Equations

1. Determine which of the following points lies on the graph of the equation.

$$y = \sqrt{x + 62}$$

- a. (2, 10)
- b. (2, 9)
- c. (2, 8)
- d. (9, 8)
- e. (3, 8)

ANSWER: c
POINTS: 1
REFERENCES: 1.1.7
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/5/2021 11:58 PM

2. Determine which of the following points lies on the graph of the equation.

$$y = |x - 2| + 4$$

- a. (5, 7)
- b. (5, 9)
- c. (5, 8)
- d. (8, 7)
- e. (6, 7)

ANSWER: a
POINTS: 1
REFERENCES: 1.1.11
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/5/2021 11:58 PM

3. Write the standard form of the equation of the circle with the given characteristics.

Endpoints of a diameter: (2, 2), (12, 2)

- a. $(x - 7)^2 + (y - 2)^2 = 5$
- b. $(x - 2)^2 + (y - 7)^2 = 25$
- c. $(x + 2)^2 + (y + 7)^2 = 25$

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d. $(x + 7)^2 + (y + 2)^2 = 25$

e. $(x - 7)^2 + (y - 2)^2 = 25$

ANSWER: e
POINTS: 1
REFERENCES: 1.1.68
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 5/8/2015 11:33 AM

4. Write the standard form of the equation of the circle with the given characteristics.

Center:(3, 1); Radius: 7

a. $(x - 3)^2 + (y - 1)^2 = 49$

b. $(x - 3)^2 + (y - 1)^2 = 7$

c. $(x - 3)^2 + (y - 1)^2 + 7 = 0$

d. $x^2 + y^2 = 0$

e. $(x - 3)^2 + (y - 1)^2 - 49 = 0$

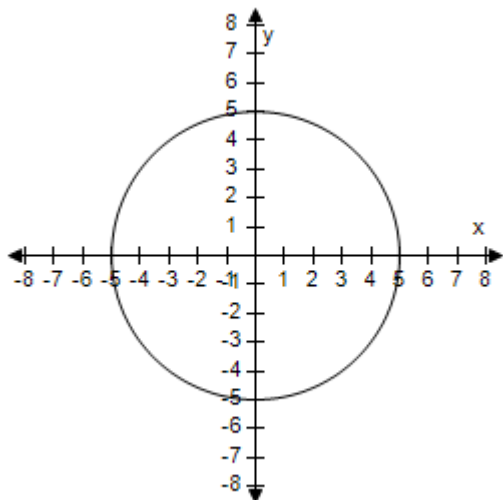
ANSWER: a
POINTS: 1
REFERENCES: 1.1.63
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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5. Find the center and radius of the circle, and sketch its graph.

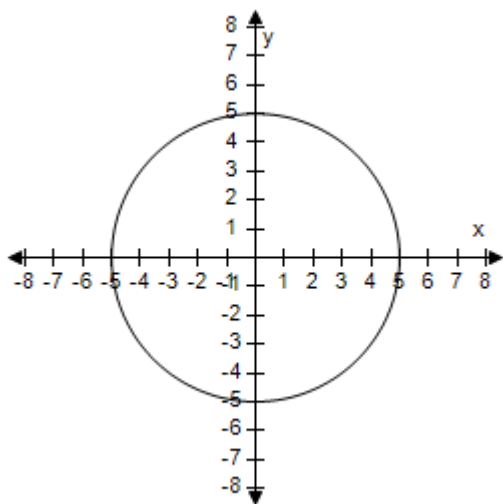
$x^2 + y^2 = 16$

a. Center (0, 0), Radius 16

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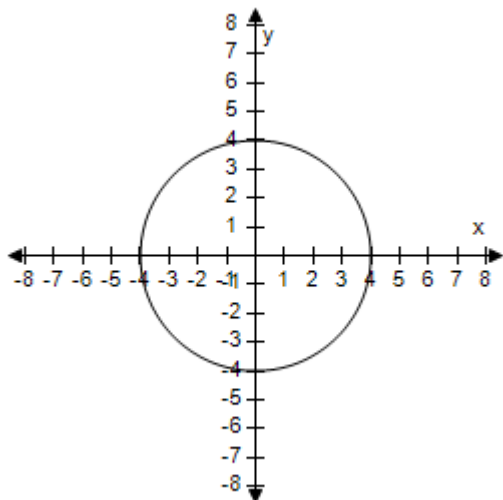


b. Center (0, 0), Radius 4

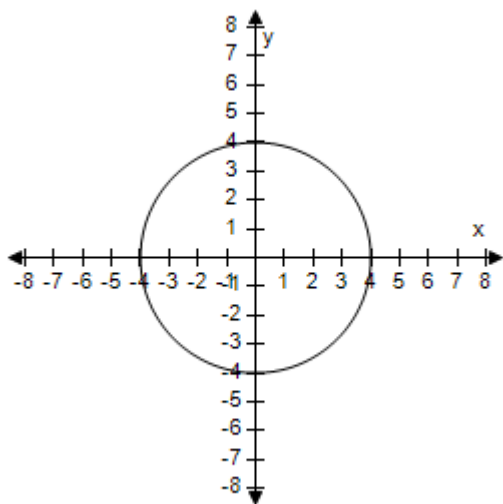


c. Center (0, 0), Radius 4

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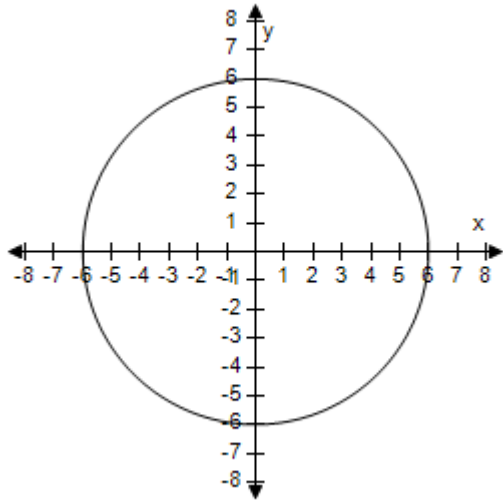


d. Center (0, 0), Radius 16



e. Center (0, 0), Radius 4

Section 1.1 - Graphs of Equations



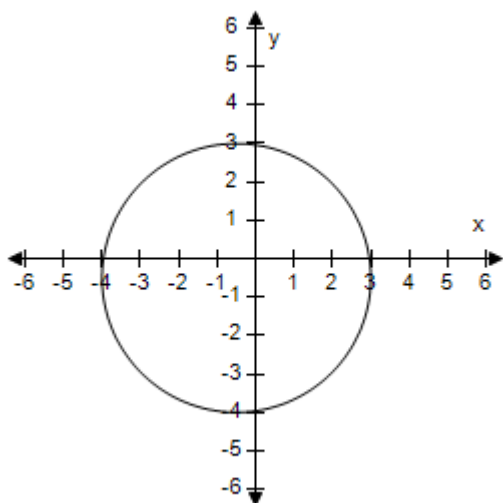
ANSWER: c
POINTS: 1
REFERENCES: 1.1.69
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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6. Find the center and radius of the circle, and sketch its graph.

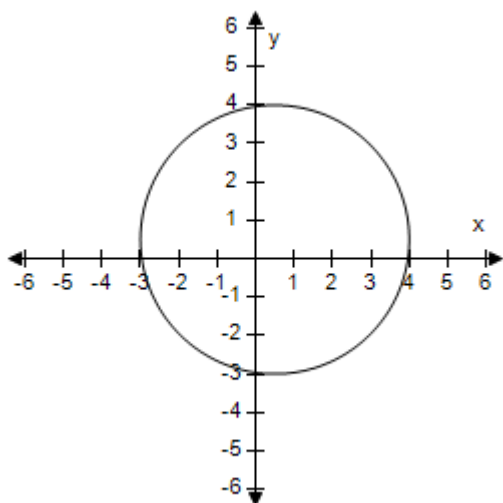
$$\left(x - \frac{1}{2}\right)^2 + \left(y - \frac{1}{2}\right)^2 = \frac{49}{4}$$

a. Center $\left(\frac{1}{2}, \frac{1}{2}\right)$, Radius $\frac{49}{4}$

Section 1.1 - Graphs of Equations

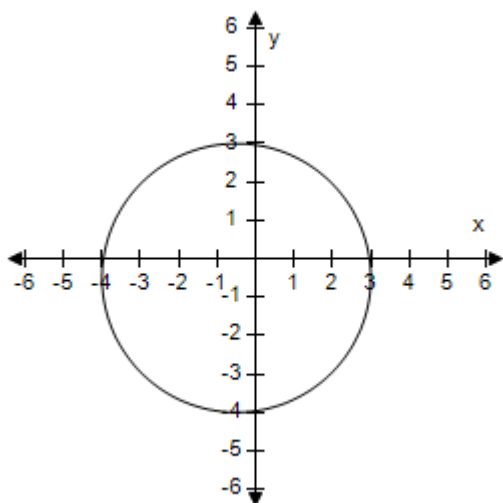


b. Center $\left(\frac{1}{2}, \frac{1}{2}\right)$, Radius $\frac{49}{4}$

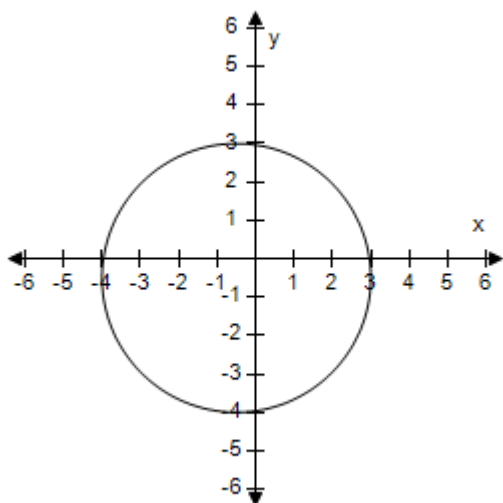


c. Center $\left(\frac{1}{2}, \frac{1}{2}\right)$, Radius $\frac{7}{2}$

Section 1.1 - Graphs of Equations

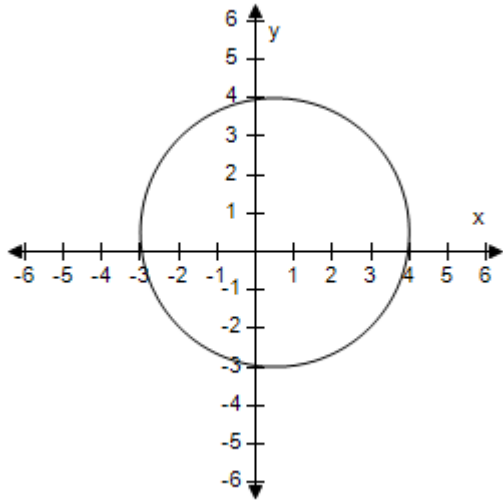


d. Center $\left(-\frac{1}{2}, -\frac{1}{2}\right)$, Radius $\frac{7}{4}$



e. Center $\left(\frac{1}{2}, \frac{1}{2}\right)$, Radius $\frac{7}{2}$

Section 1.1 - Graphs of Equations



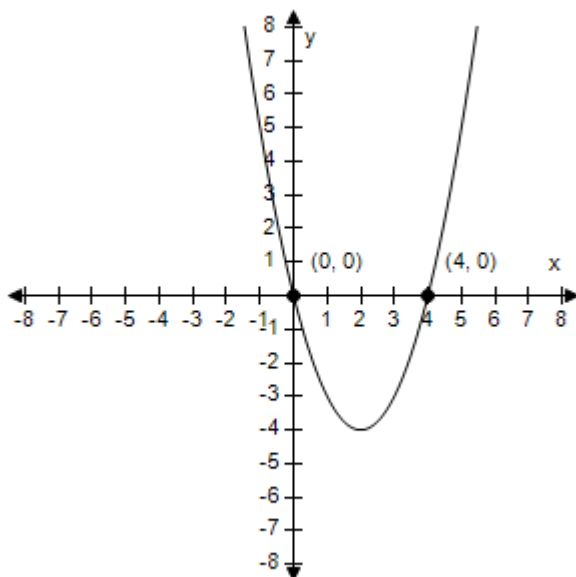
ANSWER: e
POINTS: 1
REFERENCES: 1.1.73
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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7. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

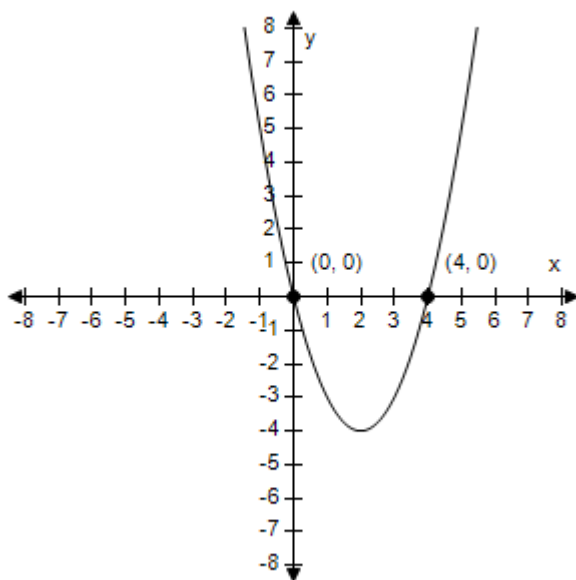
$$y = x^2 - 4x$$

- a. x-intercepts : (0, 0), (4, 0)
y-intercept : (0, 0)
No symmetry

Section 1.1 - Graphs of Equations

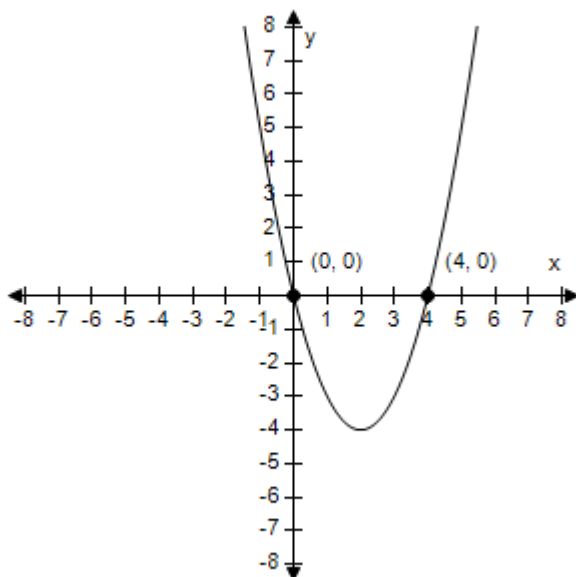


- b. x-intercepts : (0, 0), (−4, 0)
y-intercept : (0, 1)
No symmetry



- c. x-intercepts : (4, 0), (4, 0)
y-intercept : (0, 1)
No symmetry

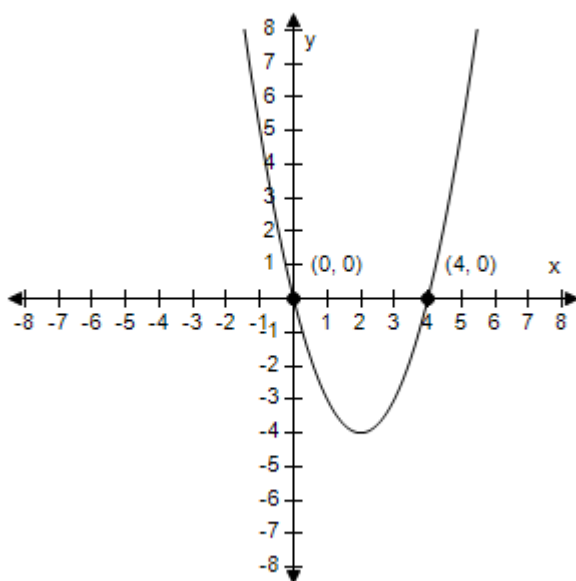
Section 1.1 - Graphs of Equations



d. x-intercepts : (0, 0), (4, 0)

y-intercept : (0, 1)

No symmetry

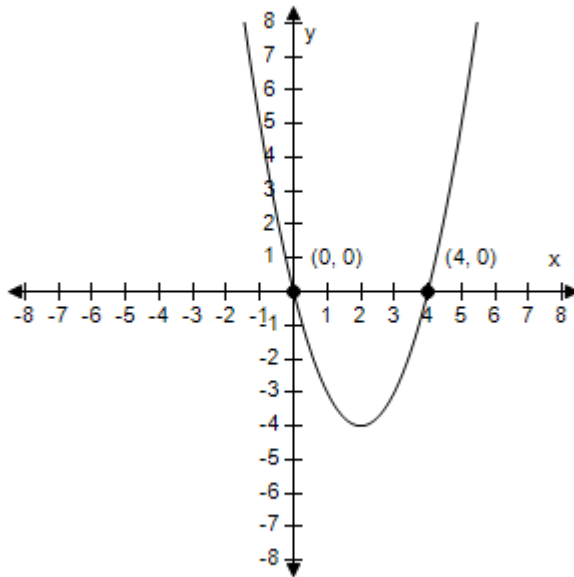


e. x-intercepts : (0, 0), (4, 0)

y-intercept : (0, -1)

No symmetry

Section 1.1 - Graphs of Equations



ANSWER: a
POINTS: 1
REFERENCES: 1.1.39
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/5/2021 11:52 PM

8. Write the standard form of the equation of the circle with the given characteristics.

Center: (6, 1); Solution point: (5, 9)

- a. $(x + 6)^2 + (y + 1)^2 = 65$
- b. $(x - 6)^2 + (y + 1)^2 - 65 = 0$
- c. $(x + 6)^2 + (y + 1)^2 + 65 = 0$
- d. $(x - 6)^2 + (y - 1)^2 = 65$
- e. $(x - 1)^2 + (y - 6)^2 = 65$

ANSWER: d
POINTS: 1
REFERENCES: 1.1.66
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM

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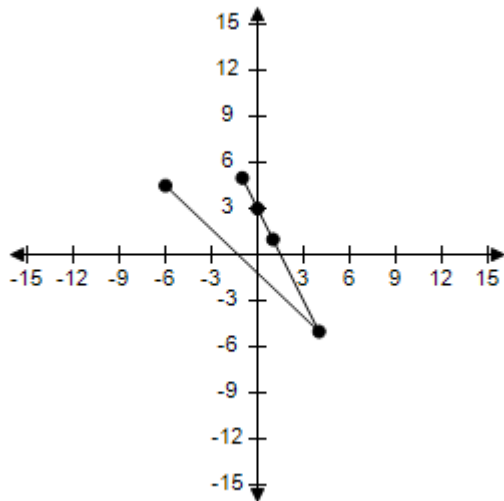
9. Complete the table. Use the resulting solution points to sketch the graph of the equation.

$$y = -2x + 3$$

x	-1	0	1	4	$\frac{9}{2}$
y					
(x, y)					

a.

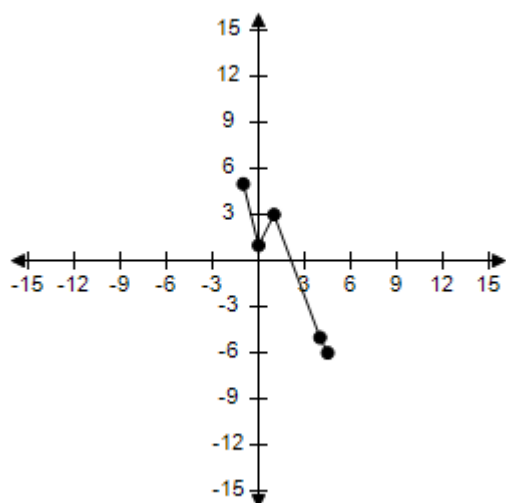
x	-1	0	1	4	$\frac{9}{2}$
y	5	3	1	-5	-6
(x, y)	$(-1, 5)$	$(0, 3)$	$(1, 1)$	$(4, -5)$	$(\frac{9}{2}, -6)$



b.

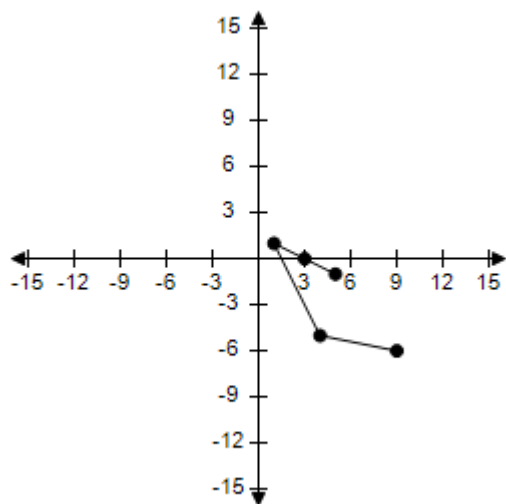
x	-1	0	1	4	$\frac{9}{2}$
y	5	3	1	-5	-6
(x, y)	$(-1, 5)$	$(0, 1)$	$(1, 3)$	$(4, -5)$	$(\frac{9}{2}, -6)$

Section 1.1 - Graphs of Equations



c.

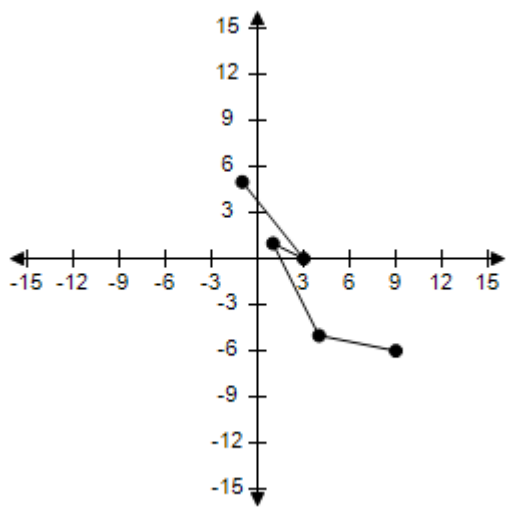
x	-1	0	1	4	$\frac{9}{2}$
y	5	3	1	-5	-6
(x, y)	(-1, 5)	(0, 3)	(1, 1)	(4, -5)	$(\frac{9}{2}, -6)$



d.

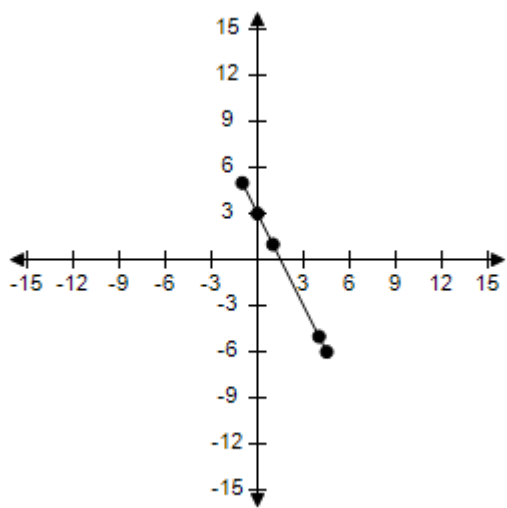
x	-1	0	1	4	$\frac{9}{2}$
y	5	3	1	-5	-6
(x, y)	(-1, 5)	(0, 3)	(1, 1)	(4, -5)	$(\frac{9}{2}, -6)$

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e.

x	-1	0	1	4	$\frac{9}{2}$
y	5	3	1	-5	-6
(x, y)	(-1, 5)	(0, 3)	(1, 1)	(4, -5)	$(\frac{9}{2}, -6)$



ANSWER: e
POINTS: 1
REFERENCES: 1.1.15
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

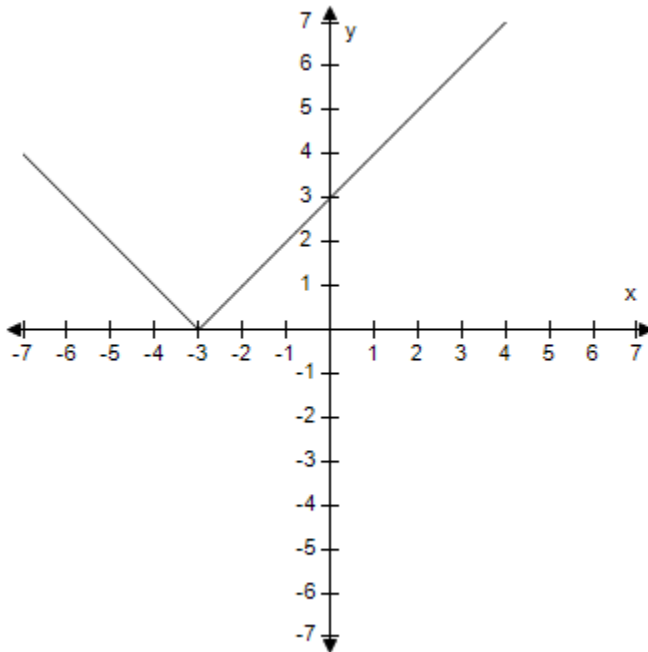
Section 1.1 - Graphs of Equations

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10. Graphically estimate the x- and y-intercepts of the graph.

$$y = |x + 3|$$



- a. x-intercept: $(-3, 0)$
y-intercept: $(0, 3)$
- b. x-intercept: $(0, -3)$
y-intercept: $(3, 0)$
- c. x-intercept: $(0, -3)$
y-intercept: $(0, 3)$
- d. x-intercept: $(3, 0)$
y-intercept: $(3, 0)$
- e. x-intercept: $(0, 3)$
y-intercept: $(3, 0)$

ANSWER: a

POINTS: 1

REFERENCES: 1.1.21

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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Section 1.1 - Graphs of Equations

11. Determine which of the following points lies on the graph of the equation.

$$x^2 + y^2 = 5$$

- a. (3, 1)
- b. (2, 3)
- c. (4, 1)
- d. (2, 1)
- e. (2, 2)

ANSWER: d

POINTS: 1

REFERENCES: 1.1.13

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:15 PM

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12. Which of the following graphs is symmetric about the y-axis?

- a. $y = x^7 - x^6 + 18$
- b. $y = x^7 - x^{12} + 18$
- c. $y = x^9 - x^7 + 18$
- d. $y = x^{12} - x^6 + 18$
- e. $y = x^9 + x^7 + 18$

ANSWER: d

POINTS: 1

REFERENCES: 1.1.28

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

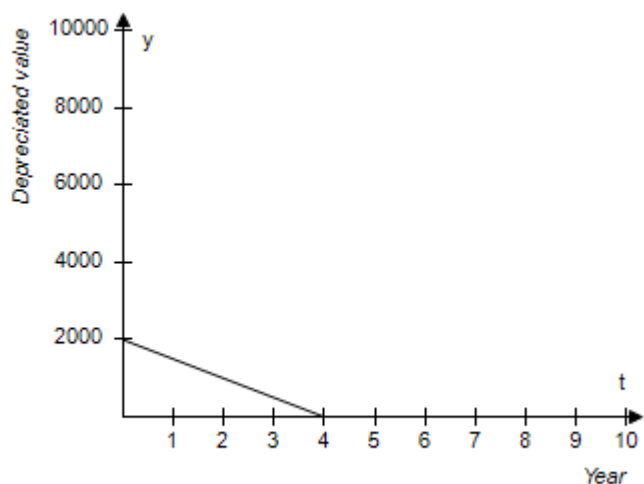
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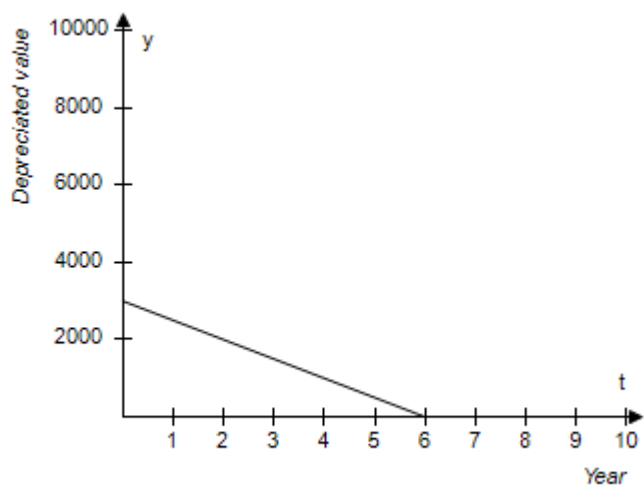
13. You purchase an all-terrain vehicle (ATV) for \$2,000. The depreciated value y after t years is given by $y = 2,000 - 500t$, $0 \leq t \leq 6$. Sketch the graph of the equation.

- a.

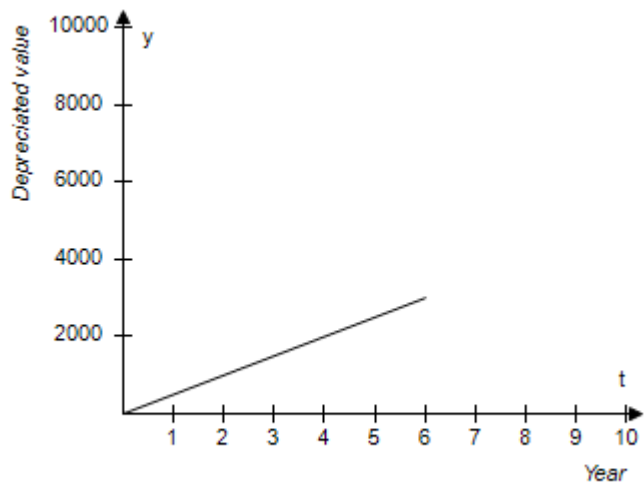
Section 1.1 - Graphs of Equations



b.

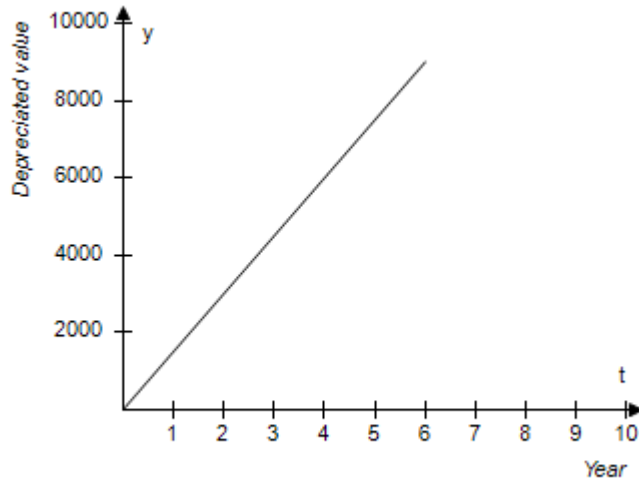


c.

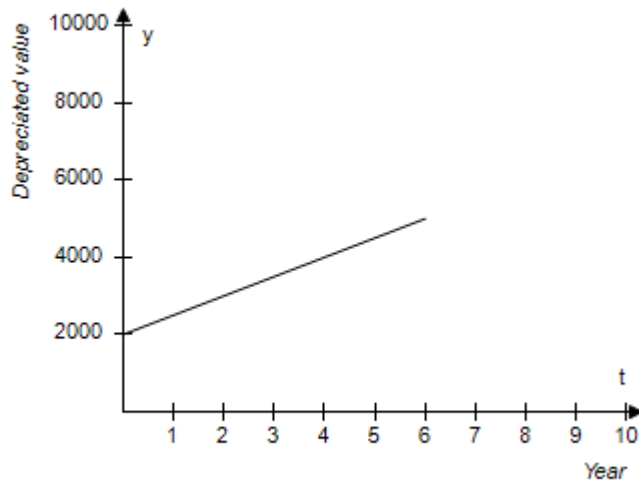


Section 1.1 - Graphs of Equations

d.



e.



ANSWER: a
POINTS: 1
REFERENCES: 1.1.76
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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DATE MODIFIED: 9/19/2014 4:40 AM

14. The resistance y (in ohms) of 1,000 feet of solid copper wire at 68 degrees Fahrenheit can be approximated by the model

$$y = \frac{10,770}{x^2} - 0.37, \quad 5 \leq x \leq 100$$

where x is the diameter of the wire in mils (0.001 inch).

Section 1.1 - Graphs of Equations

Complete the table.

x	15	45	55	70	75
y					

Round the answer to two decimal places.

a.

x	15	45	55	70	75
y	47.50	1.54	3.19	1.83	4.95

b.

x	15	45	55	70	75
y	47.50	4.95	3.19	1.54	1.83

c.

x	15	45	55	70	75
y	47.50	4.95	1.83	3.19	1.54

d.

x	15	45	55	70	75
y	47.50	3.19	4.95	1.83	1.54

e.

x	15	45	55	70	75
y	47.50	4.95	3.19	1.83	1.54

ANSWER:

e

POINTS:

1

REFERENCES:

1.1.80

QUESTION TYPE:

Multi-Mode (Multiple choice)

HAS VARIABLES:

True

STUDENT ENTRY MODE:

Basic

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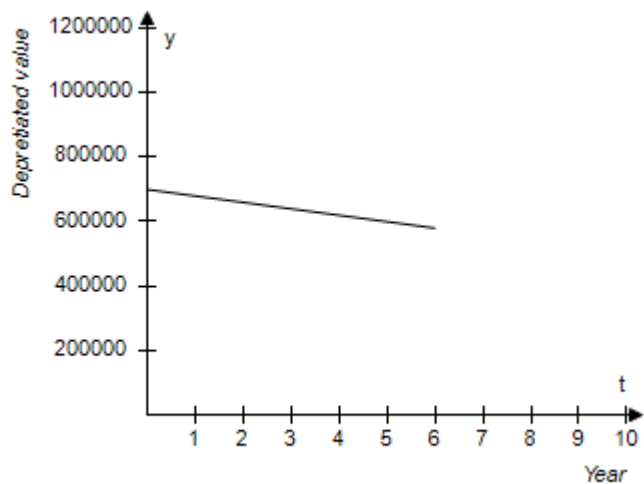
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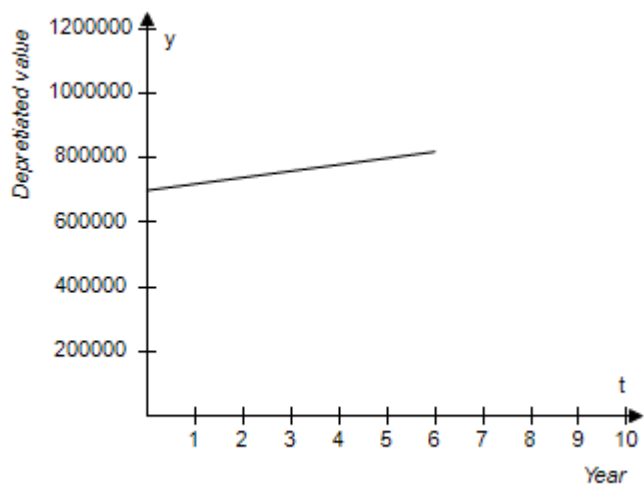
15. A hospital purchases a new magnetic resonance imaging (MRI) machine for \$600,000. The depreciated value y (reduced value) after t years is given by $y = 600,000 - 20,000t$, $0 \leq t \leq 6$. Sketch the graph of the equation.

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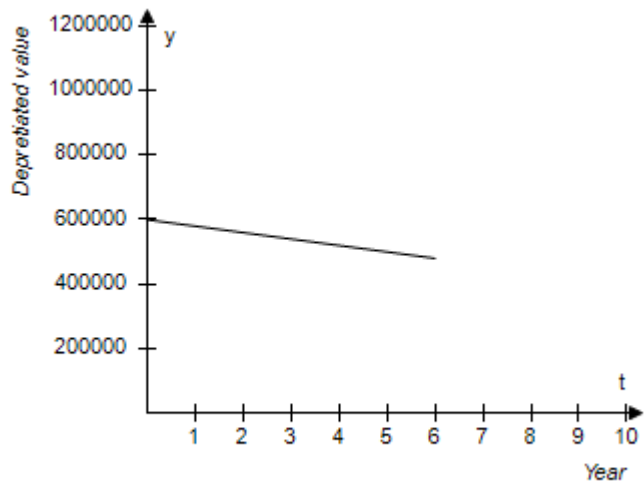
a.



b.

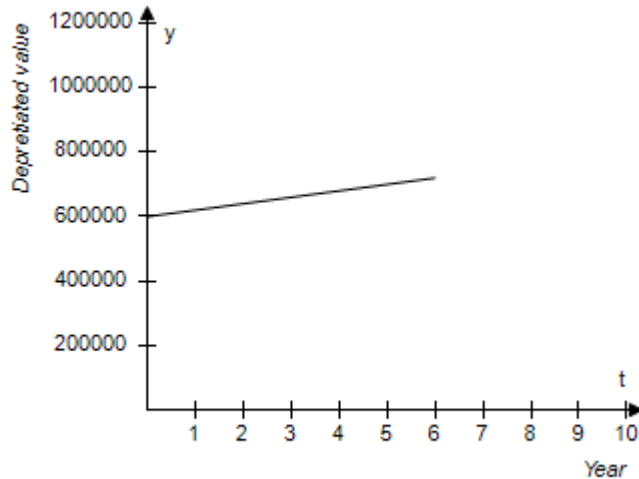


c.

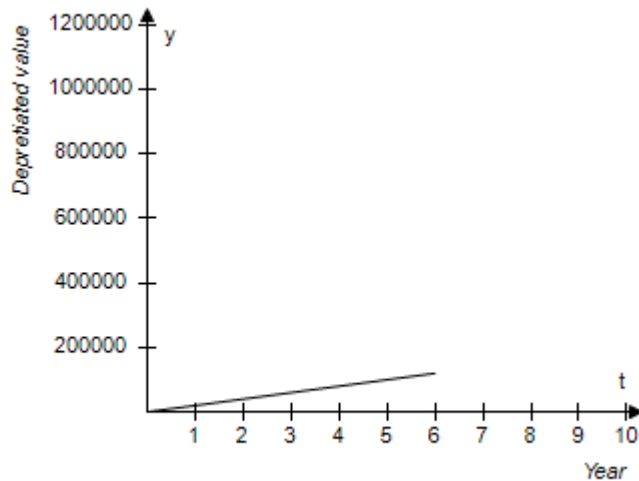


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d.



e.



ANSWER: c
POINTS: 1
REFERENCES: 1.1.75
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/6/2021 12:00 AM

16. Determine which of the following point lies on the graph of the equation.

$$y = \frac{1}{3}x^3 - 3x^2$$

- a. (3, -18)
- b. (6, 5)

Section 1.1 - Graphs of Equations

c. (4, 5)

d. (3, 6)

e. (3, 7)

ANSWER: a

POINTS: 1

REFERENCES: 1.1.14

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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17. Complete the table.

$$y = \frac{3}{4}x - 1$$

x	-12	-8	4	12	16
y					
(x,y)					

a.

x	-12	-8	4	12	16
y	-10	-7	2	8	11
(x,y)	(-10, -12)	(-7, -8)	(4, 2)	(12, 8)	(16, 11)

b.

x	-12	-8	4	12	16
y	-10	-7	2	8	11
(x,y)	(-12, -10)	(-8, -7)	(2, 4)	(12, 8)	(11, 16)

c.

x	-12	-8	4	12	16
y	-10	-7	2	8	11
(x,y)	(-12, -10)	(-7, -8)	(2, 4)	(12, 8)	(16, 11)

d.

x	-12	-8	4	12	16
y	-10	-7	2	8	11
(x,y)	(-12, -10)	(-8, -7)	(4, 2)	(12, 8)	(16, 11)

e.

x	-12	-8	4	12	16
y	-10	-7	2	8	11
(x,y)	(-12, -10)	(-8, 2)	(4, -7)	(12, 8)	(16, 11)

ANSWER: d

POINTS: 1

REFERENCES: 1.1.16

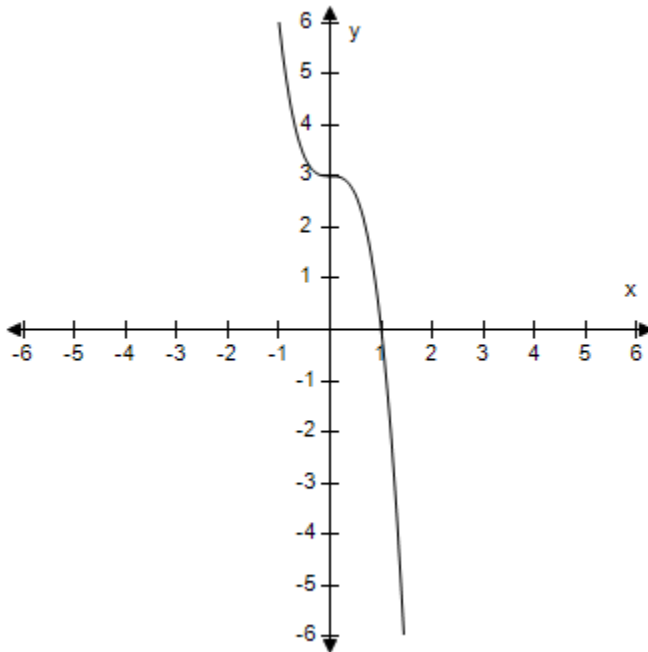
QUESTION TYPE: Multi-Mode (Multiple choice)

Section 1.1 - Graphs of Equations

HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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18. Graphically estimate the x- and y-intercepts of the graph.

$$y = 3 - 3x^3$$



- a. x-intercept: (0, 1)
y-intercept: (0, 3)
- b. x-intercept: (1, 0)
y-intercept: (3, 0)
- c. x-intercept: (0, 1)
y-intercept: (3, 0)
- d. x-intercept: (1, 0)
y-intercept: (0, 3)
- e. x-intercept: (1, 0)
y-intercept: (0, -3)

ANSWER: d
POINTS: 1
REFERENCES: 1.1.23
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

Section 1.1 - Graphs of Equations

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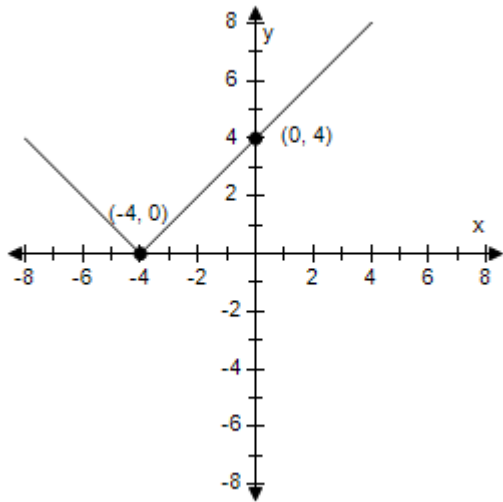
19. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

$$y = |x - 4|$$

a. x- intercept: (4, 0)

y- intercept: (0, 4)

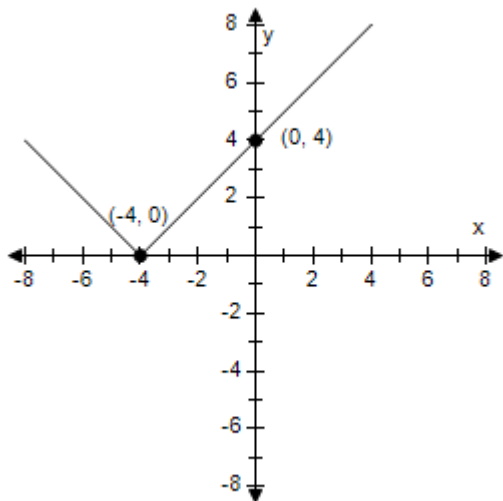
No symmetry



b. x- intercept: (-4, 0)

y- intercept: (0, 4)

No symmetry

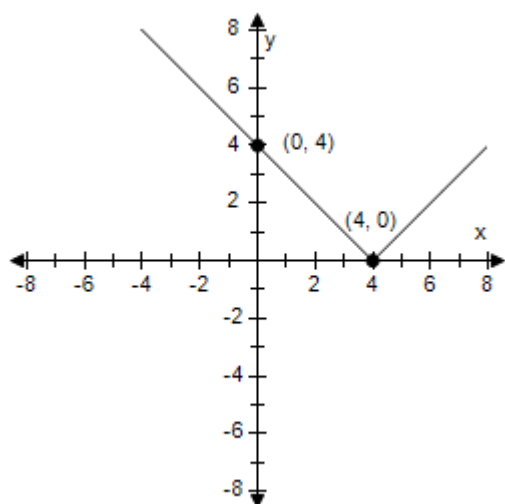


c. x- intercept: (4, 0)

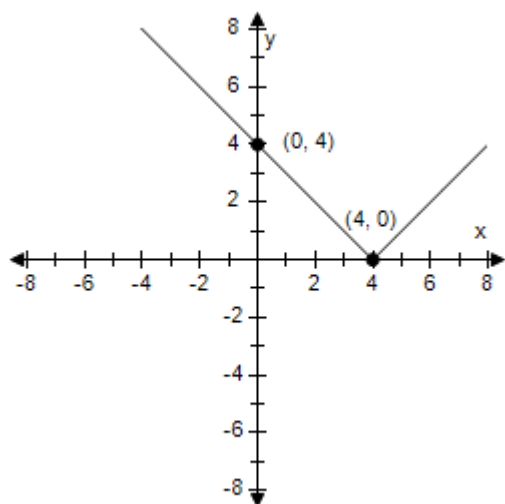
y- intercept: (4, 0)

Section 1.1 - Graphs of Equations

No symmetry

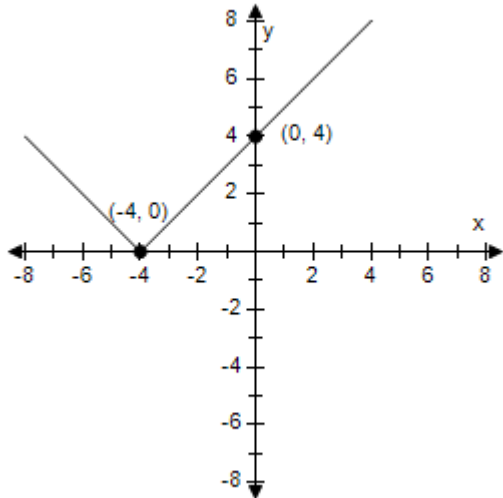


- d. x - intercept: (4, 0)
 y - intercept: (0, 4)
No symmetry



- e. x - intercept: (4, 0)
 y - intercept: (4, 0)
No symmetry

Section 1.1 - Graphs of Equations

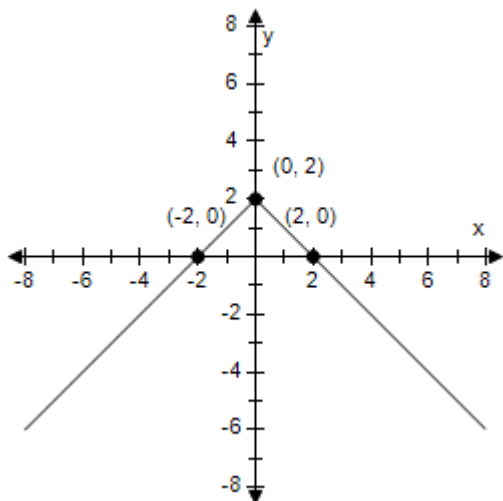


ANSWER: d
POINTS: 1
REFERENCES: 1.1.45
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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20. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

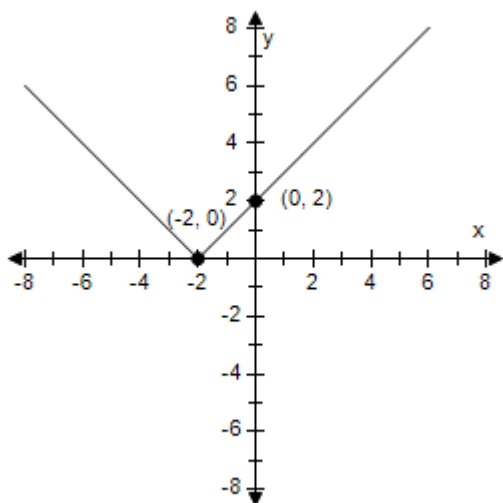
$$y = 2 - |x|$$

- a. x- intercepts: $(\pm 2, 0)$
y- intercept: $(0, 2)$
y-axis symmetry

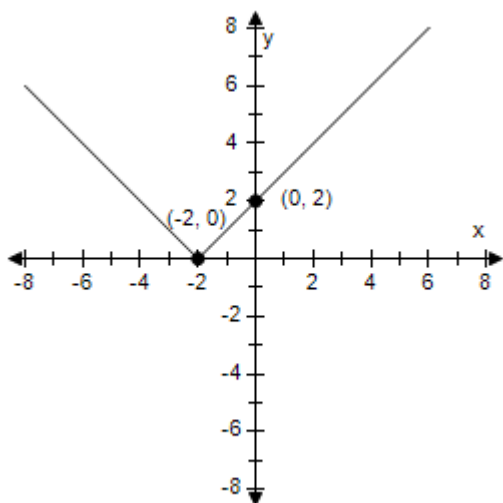


Section 1.1 - Graphs of Equations

- b. x- intercept: $(-2, 0)$
y- intercept: $(0, 2)$
y-axis symmetry

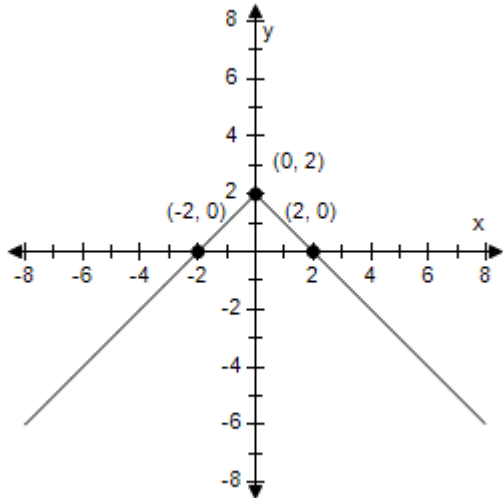


- c. x- intercept: $(2, 0)$
y- intercepts: $(0, \pm 2)$
y-axis symmetry

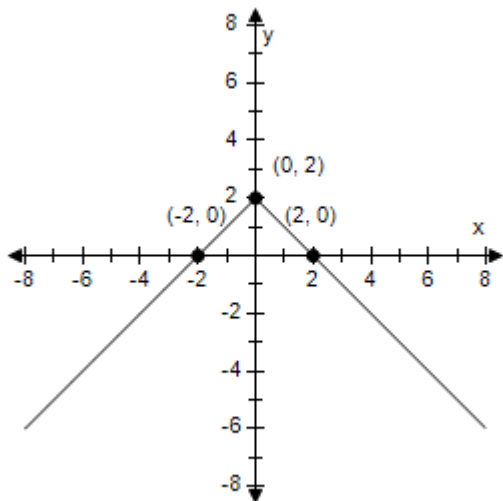


- d. x- intercept: $(2, 0)$
y- intercept: $(0, 2)$
y-axis symmetry

Section 1.1 - Graphs of Equations



- e. x- intercept: (-2, 0)
y- intercept: (0, 2)
y-axis symmetry



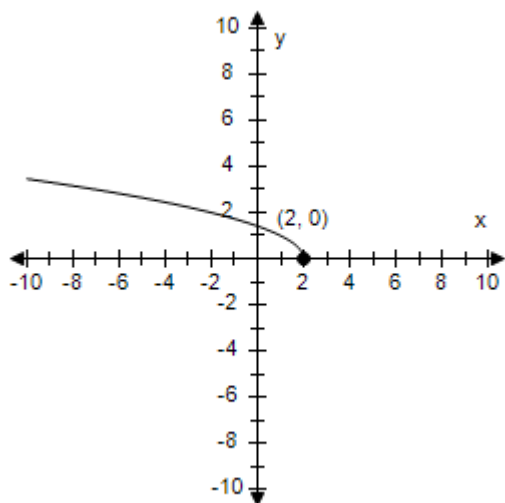
ANSWER: a
POINTS: 1
REFERENCES: 1.1.46
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/6/2021 12:21 AM

21. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

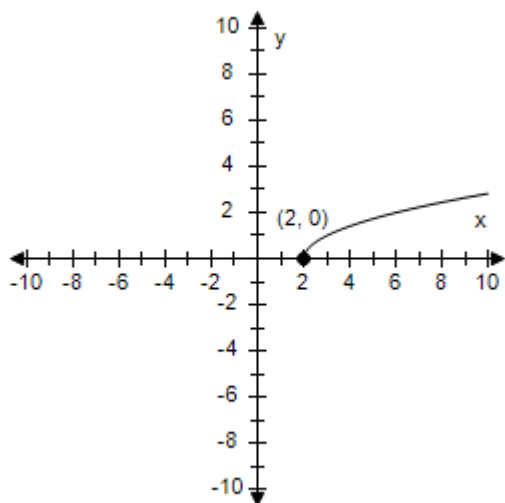
$$y = \sqrt{x-2}$$

Section 1.1 - Graphs of Equations

- a. x -intercept: $(2, 0)$
 y -intercept: none
No symmetry

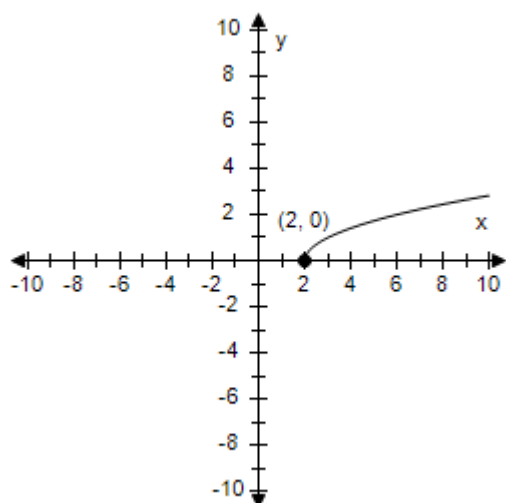


- b. x -intercept: $(2, 0)$
 y -intercept: none
No symmetry

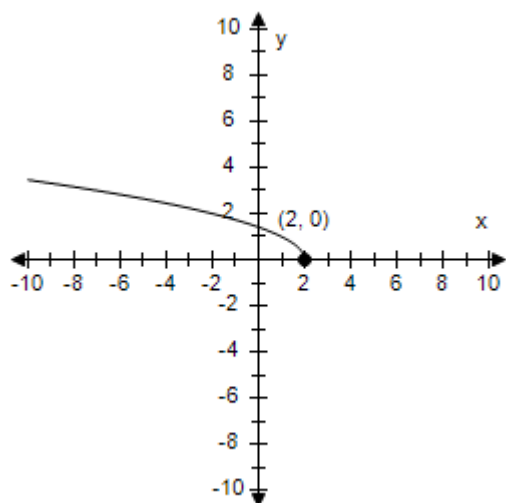


- c. x -intercept: $(2, 0)$
 y -intercept: $(0, \sqrt{2})$
No symmetry

Section 1.1 - Graphs of Equations

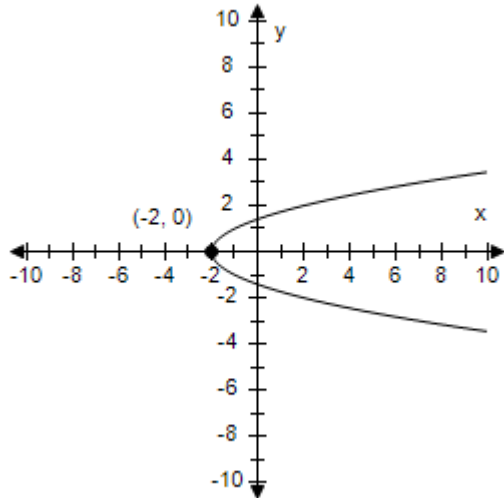


- d. x-intercept: $(-2, 0)$
y-intercept: none
No symmetry



- e. x-intercept: $(-2, 0)$
y-intercept: none
No symmetry

Section 1.1 - Graphs of Equations

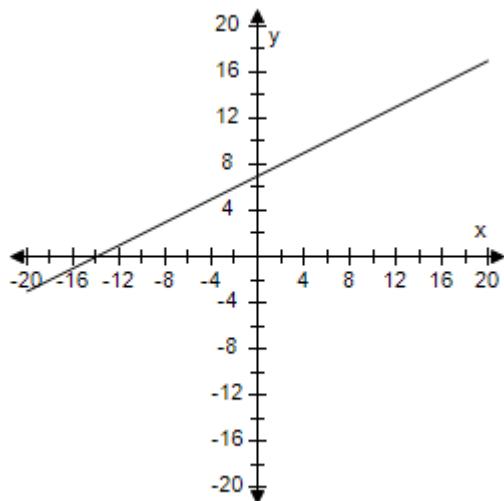


ANSWER: b
POINTS: 1
REFERENCES: 1.1.43
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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22. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

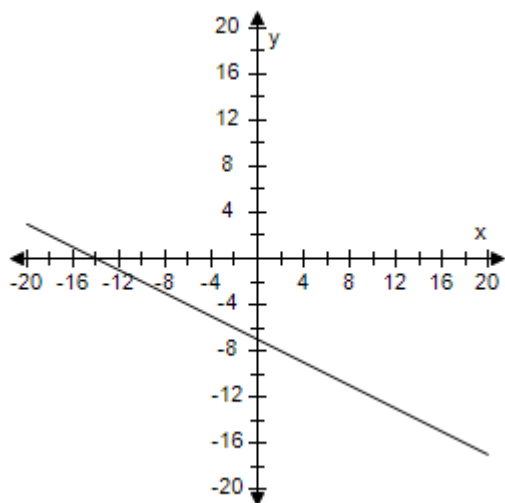
$$y = 7 - \frac{1}{2}x$$

a. Intercepts: $(0, 7)$, $(-14, 0)$

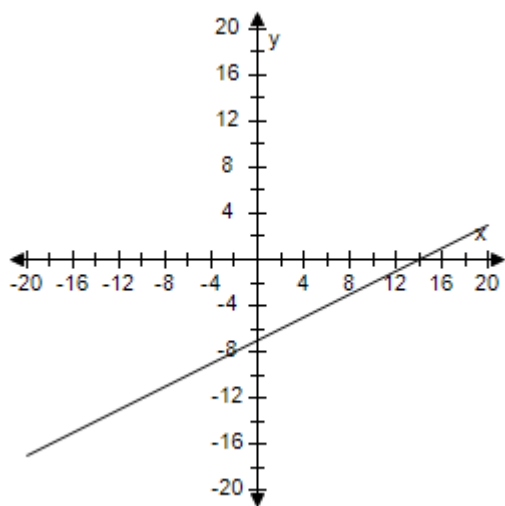


b. Intercepts: $(-14, 0)$, $(0, -7)$

Section 1.1 - Graphs of Equations

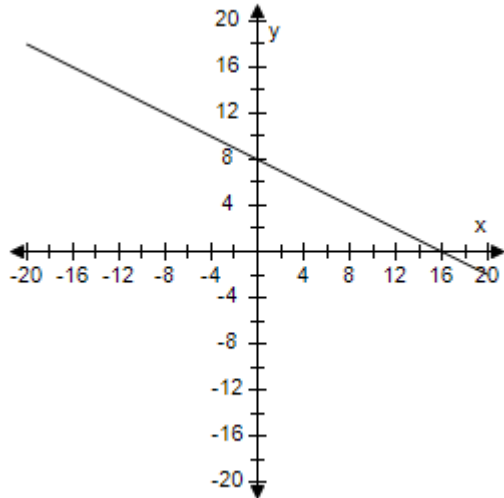


c. Intercepts: (14, 0), (0, -7)

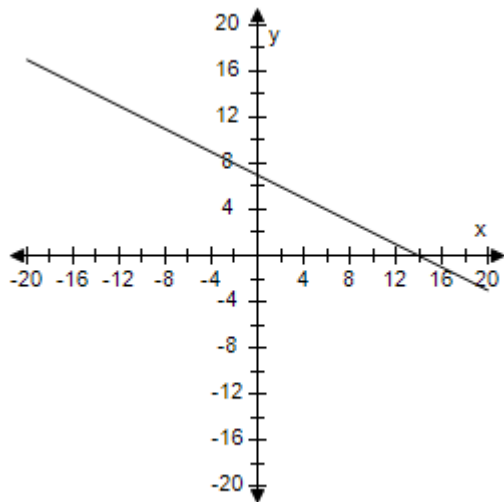


d. Intercepts: (0, 8), (15, 0)

Section 1.1 - Graphs of Equations



e. Intercepts: (14, 0), (0, 7)



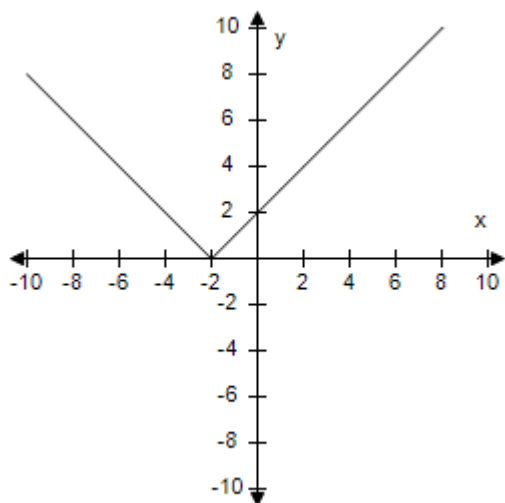
ANSWER: e
POINTS: 1
REFERENCES: 1.1.49
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/18/2014 2:34 AM

23. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

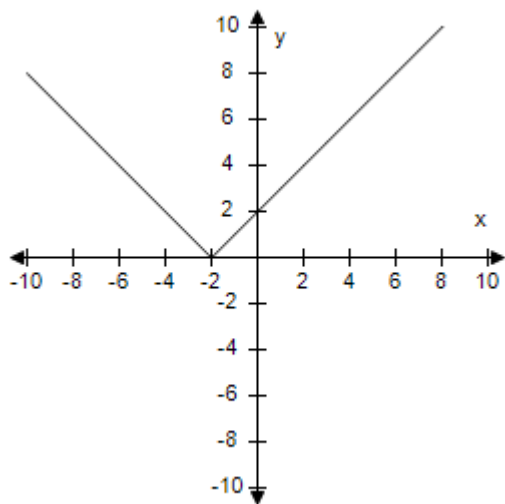
$$y = |x + 2|$$

a. Intercepts: (0, -2), (0, 2)

Section 1.1 - Graphs of Equations

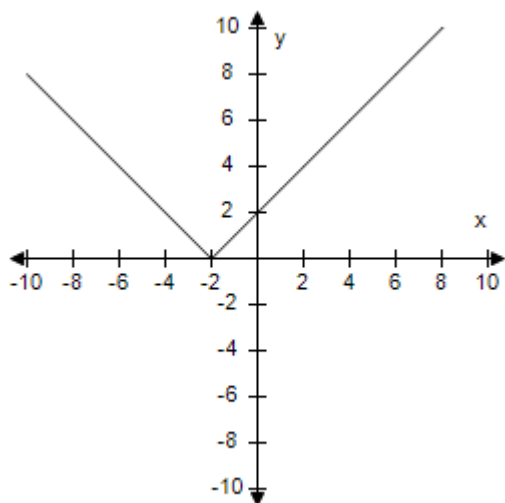


b. Intercepts: $(-2, 0)$, $(0, -2)$

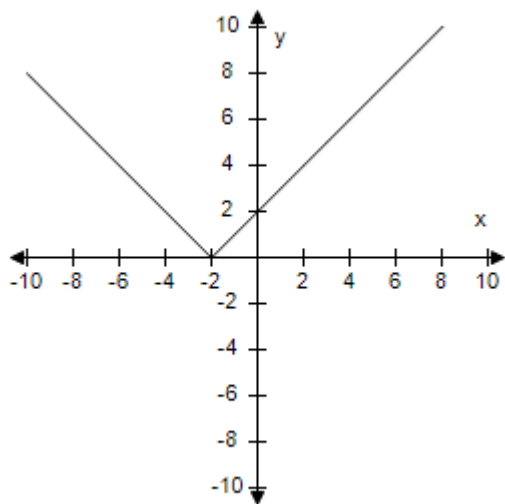


c. Intercepts: $(2, 0)$, $(0, 2)$

Section 1.1 - Graphs of Equations

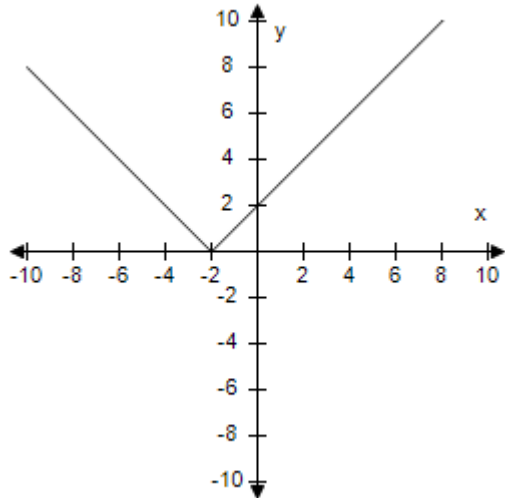


d. Intercepts: $(-2, 0)$, $(0, 2)$



e. Intercepts: $(-2, 0)$, $(2, 0)$

Section 1.1 - Graphs of Equations

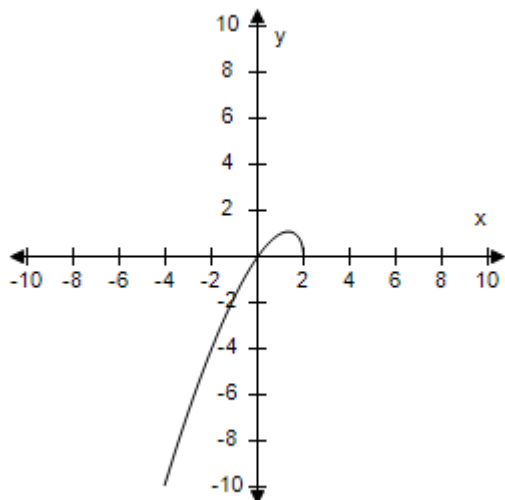


ANSWER: d
POINTS: 1
REFERENCES: 1.1.59
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/18/2014 2:29 AM

24. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

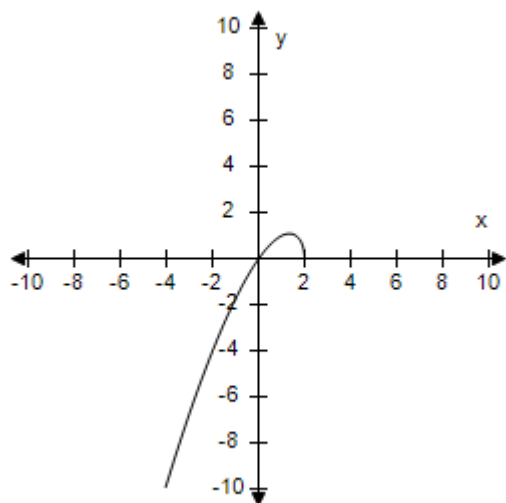
$$y = x\sqrt{x+2}$$

a. Intercepts: (0, 0), (-2, 0)

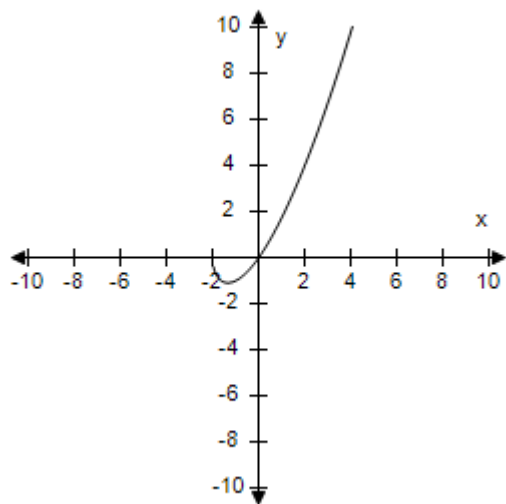


b. Intercepts: (0, 0), (2, 0)

Section 1.1 - Graphs of Equations

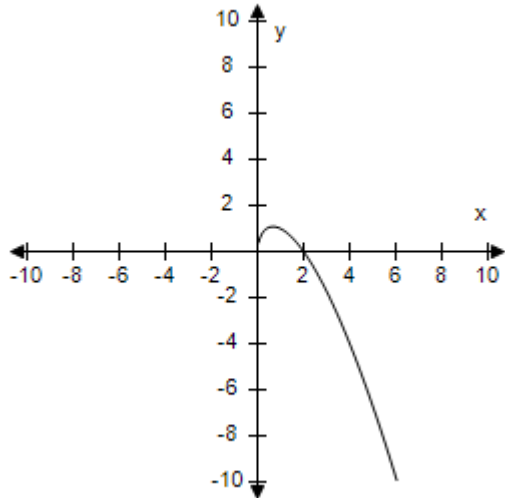


c. Intercepts: $(0, 0)$, $(-2, 0)$

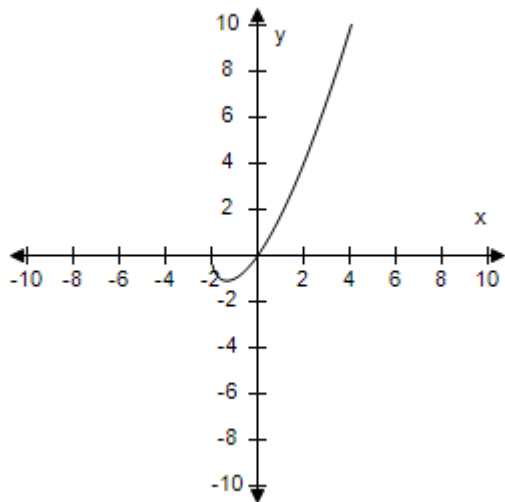


d. Intercepts: $(0, 0)$, $(-2, 0)$

Section 1.1 - Graphs of Equations



e. Intercepts: (0, 0), (6, 0)



ANSWER: c
POINTS: 1
REFERENCES: 1.1.57
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 5/8/2015 12:08 PM

25. Determine which of the following points lies on the graph of the equation.

$$y = 3 - |x - 1|$$

- a. (4, 2)
- b. (6, 0)

Section 1.1 - Graphs of Equations

c. (5, 0)

d. (4, 0)

e. (4, 1)

ANSWER: d

POINTS: 1

REFERENCES: 1.1.10

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:15 PM

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26. Complete the table. Use the resulting solution points to sketch the graph of the equation.

$$y = 7 - 4x^2$$

x	-2	-1	0	1	2
y					
(x,y)					

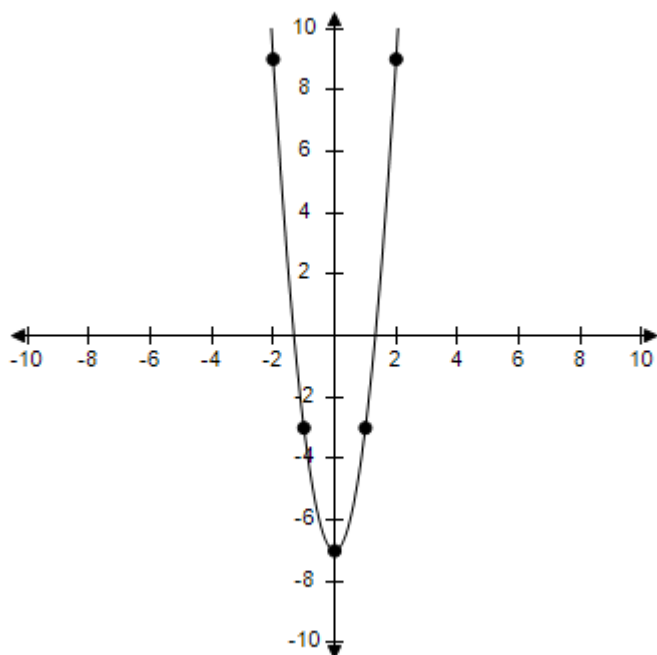
x	7	4	-1	-2	-5
y					
(x,y)					

x	7	4	-1	-2	-5
y					
(x,y)					

a.

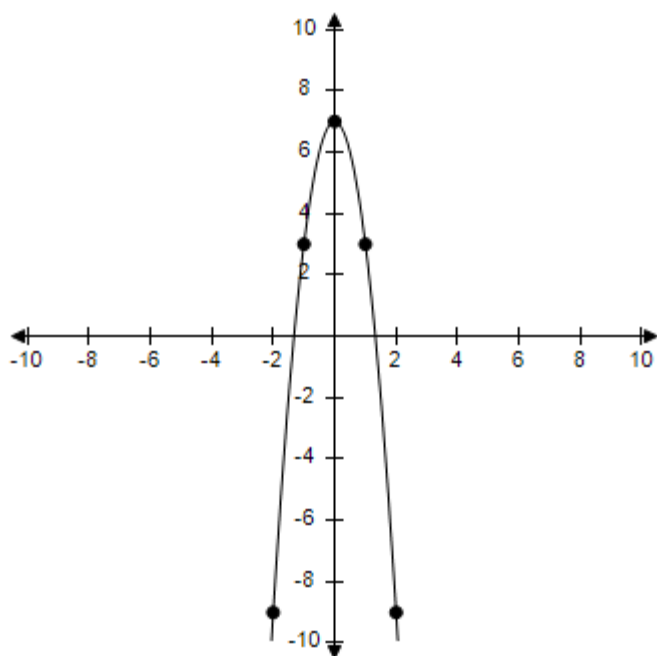
x	-2	-1	0	1	2
y	9	-3	-7	-3	9
(x,y)	(-2, 9)	(-1, -3)	(0, -7)	(1, -3)	(2, 9)

Section 1.1 - Graphs of Equations



b.

x	-2	-1	0	1	2
y	-9	3	7	3	-9
(x, y)	$(-2, -9)$	$(-1, 3)$	$(0, 7)$	$(1, 3)$	$(2, -9)$

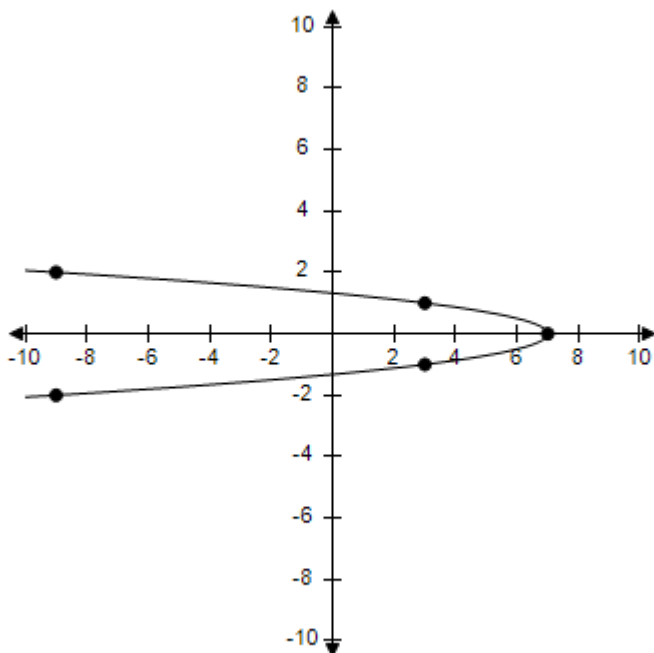


c.

x	-2	-1	0	1	2
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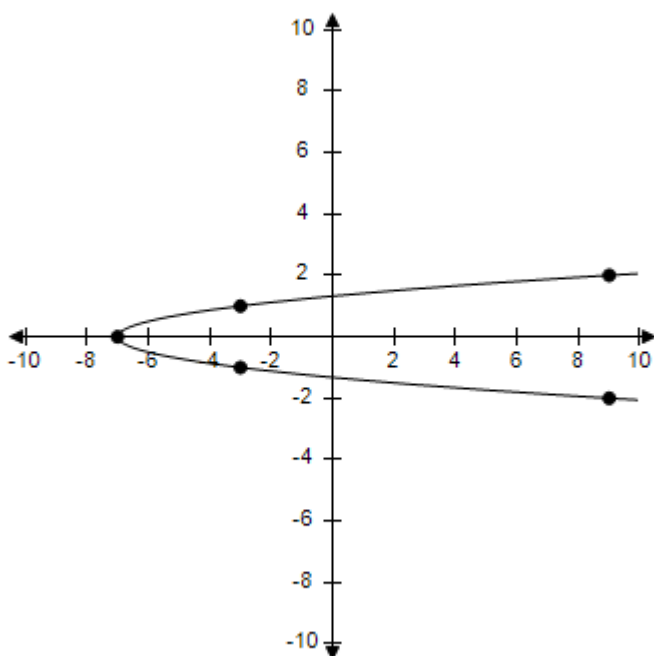
Section 1.1 - Graphs of Equations

y	-9	3	7	3	-9
(x,y)	$(-2, -9)$	$(-1, 3)$	$(0, 7)$	$(1, 3)$	$(2, -9)$



d.

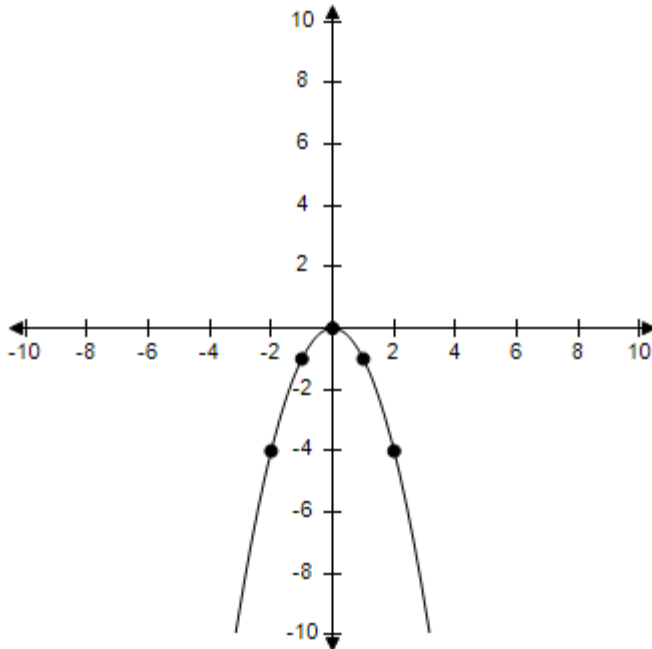
x	-2	-1	0	1	2
y	9	-3	-7	-3	9
(x,y)	$(-2, 9)$	$(-1, -3)$	$(0, -7)$	$(1, -3)$	$(2, 9)$



Section 1.1 - Graphs of Equations

e.

x	-2	-1	0	1	2
y	-4	-1	0	-1	-4
(x,y)	(,)	(,)	(,)	(,)	(,)

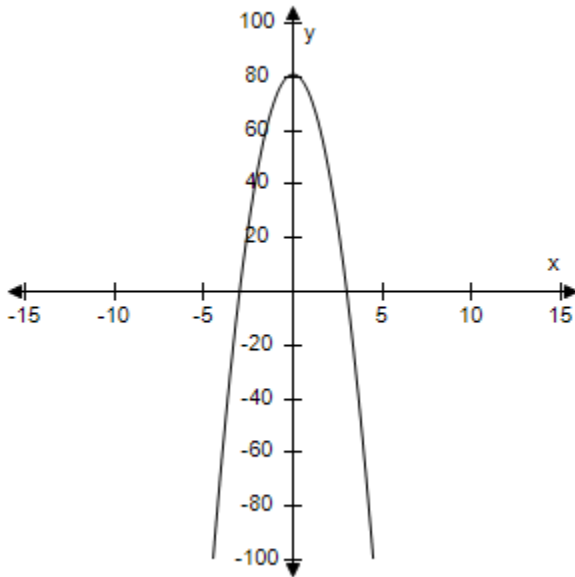


ANSWER: b
 POINTS: 1
 REFERENCES: 1.1.18
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
 DATE CREATED: 6/10/2014 4:15 PM
 DATE MODIFIED: 7/6/2021 10:35 AM

27. Graphically estimate the x- and y-intercepts of the graph.

$$y = 81 - 9x^2$$

Section 1.1 - Graphs of Equations



- a. x-intercepts: $(\pm 3, 0)$
y-intercept: $(0, 81)$
- b. x-intercept: $(3, 0)$
y-intercept: $(0, 81)$
- c. x-intercept: $(-3, 0)$
y-intercept: $(0, 81)$
- d. x-intercepts: $(\pm 3, 0)$
y-intercept: $(0, 9)$
- e. x-intercept: $(0, 3)$
y-intercept: $(0, 81)$

ANSWER: a

POINTS: 1

REFERENCES: 1.1.20

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

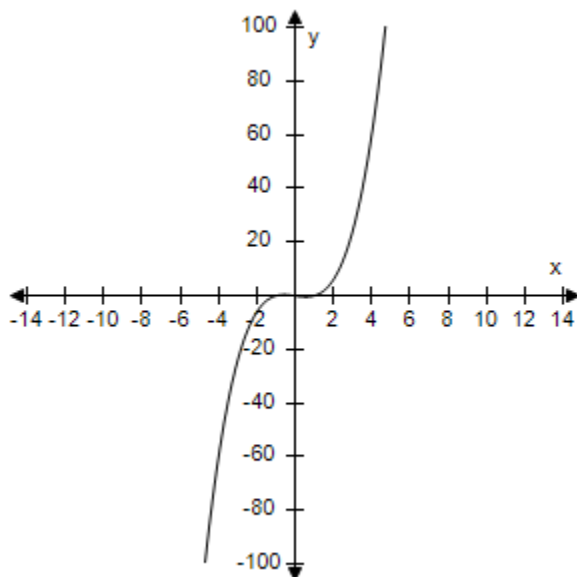
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DATE MODIFIED: 7/6/2021 10:37 AM

28. Graphically estimate the x- and y-intercepts of the graph.

$$y = x^3 - x$$

Section 1.1 - Graphs of Equations



- a. x-intercepts: $(\pm 1, 0)$, $(0, 0)$
y-intercept: $(0, 0)$
- b. x-intercepts: $(1, 0)$, $(0, 0)$
y-intercept: $(0, 0)$
- c. x-intercepts: $(-1, 0)$, $(0, 0)$
y-intercept: $(0, 0)$
- d. x-intercepts: $(0, \pm 1)$, $(0, 0)$
y-intercept: $(0, 0)$
- e. x-intercepts: $(0, 1)$, $(0, 0)$
y-intercept: $(0, 0)$

ANSWER: a

POINTS: 1

REFERENCES: 1.1.24

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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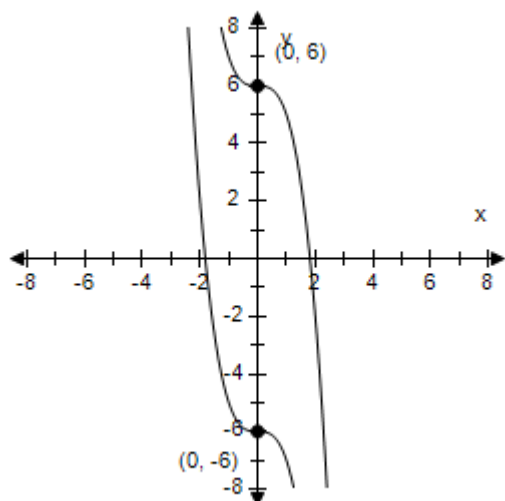
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29. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

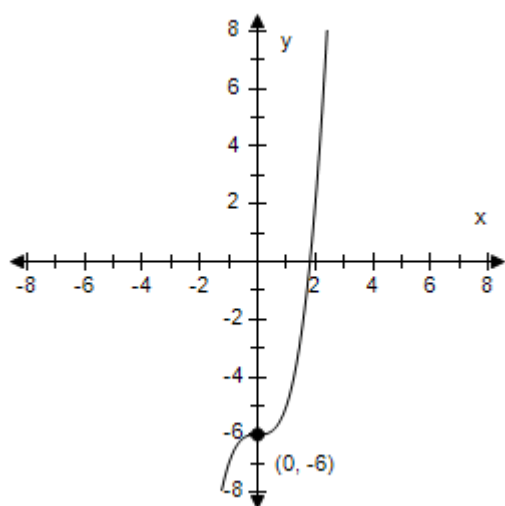
$$y = x^3 - 6$$

- a. x-intercept: $(\sqrt[3]{6}, 0)$
y-intercept: $(0, \pm 6)$
No symmetry

Section 1.1 - Graphs of Equations

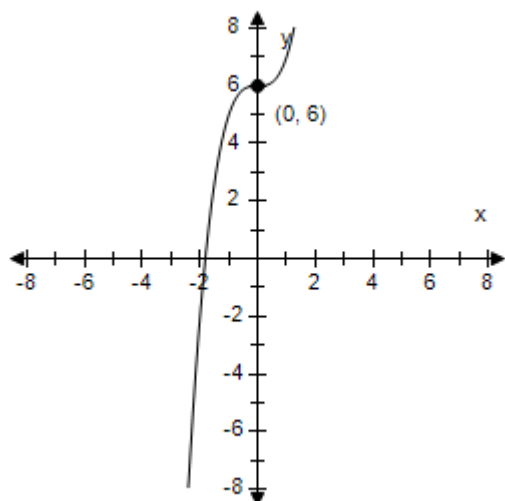


- b. x -intercept: $(\sqrt[3]{6}, 0)$
 y -intercept: $(0, -6)$
No symmetry

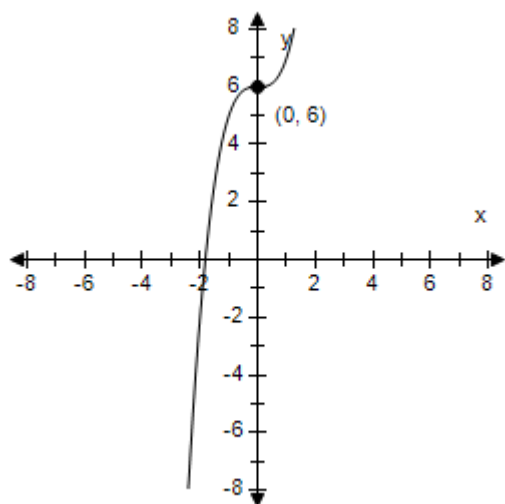


- c. x -intercept: $(\sqrt[3]{6}, 0)$
 y -intercept: $(0, 6)$
No symmetry

Section 1.1 - Graphs of Equations

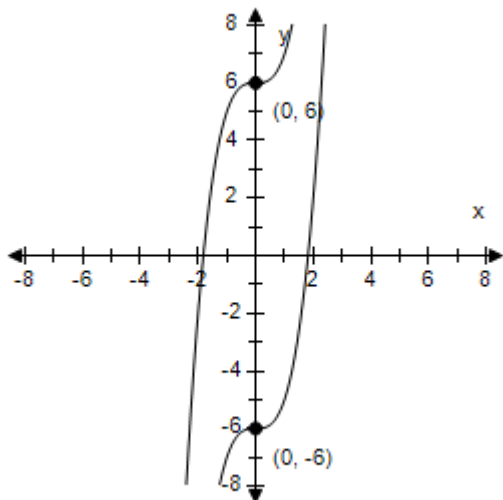


- d. x- intercept: $(\sqrt[3]{-6}, 0)$
y- intercept: $(0, 6)$
No symmetry



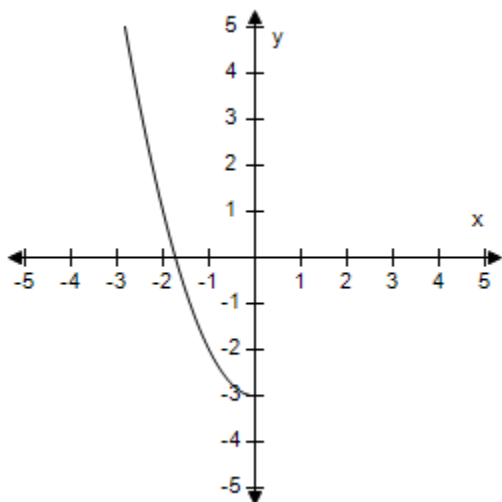
- e. x- intercept: $(\sqrt[3]{-6}, 0)$
y- intercept: $(0, \pm 6)$
No symmetry

Section 1.1 - Graphs of Equations



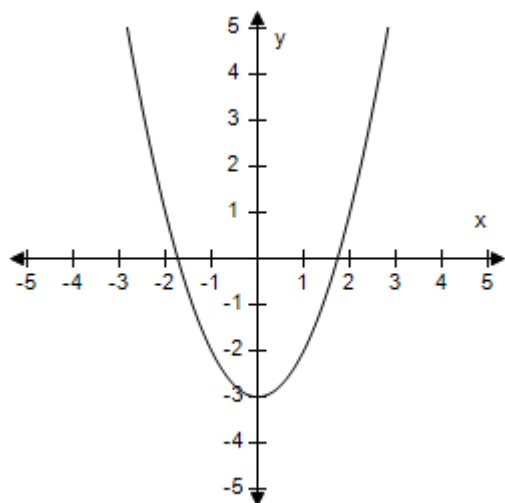
ANSWER: b
POINTS: 1
REFERENCES: 1.1.42
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/19/2014 1:31 AM

30. Assume that the graph has y -symmetry. Select the complete graph of the equation.

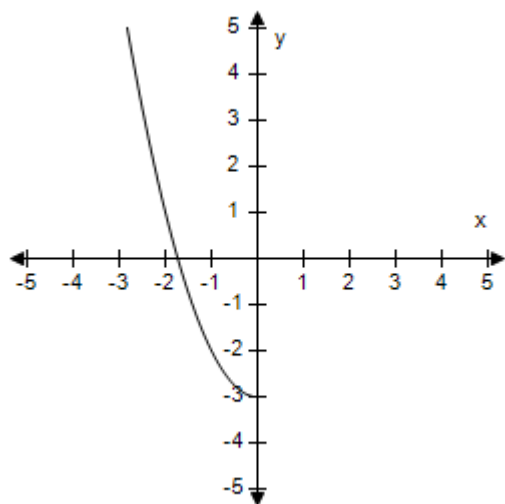


a.

Section 1.1 - Graphs of Equations

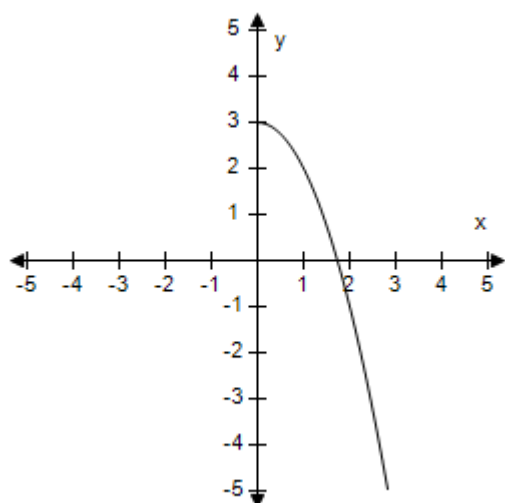


b.

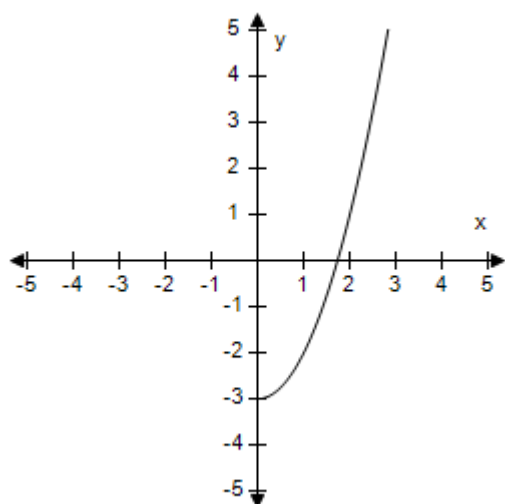


c.

Section 1.1 - Graphs of Equations

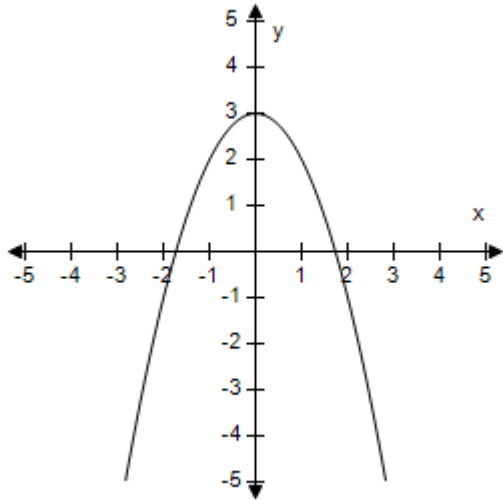


d.



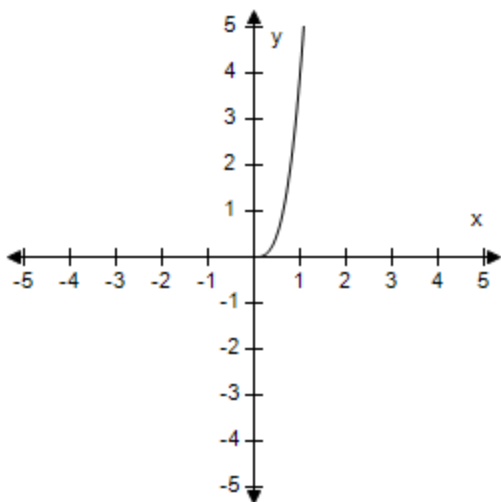
e.

Section 1.1 - Graphs of Equations



ANSWER: a
POINTS: 1
REFERENCES: 1.1.33
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/19/2014 1:41 AM

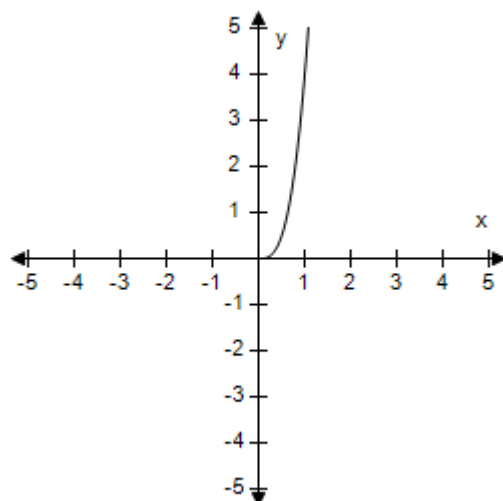
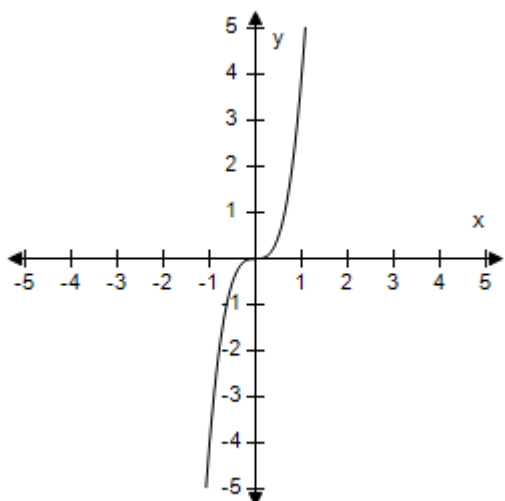
31. Assume that the graph has Origin symmetry. Select the complete graph of the equation.



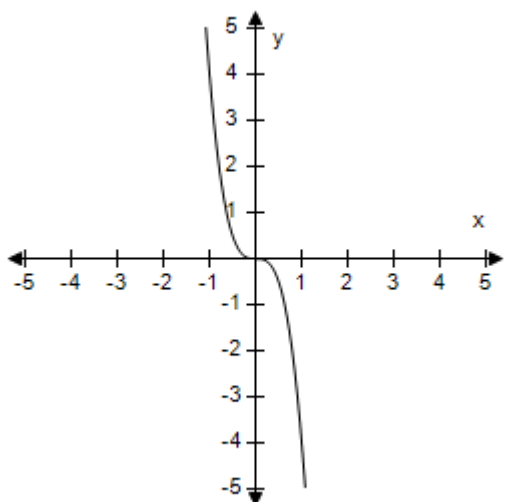
a.

b.

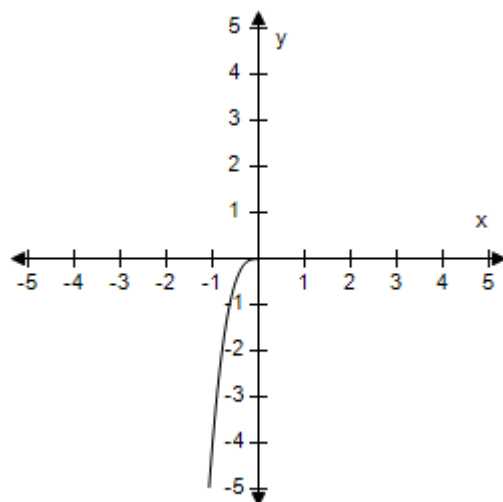
Section 1.1 - Graphs of Equations



c.

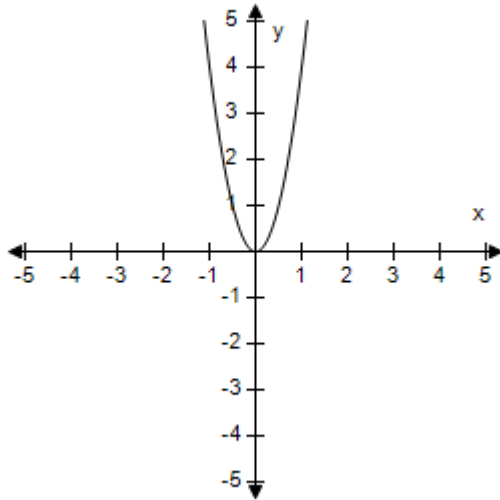


d.



e.

Section 1.1 - Graphs of Equations



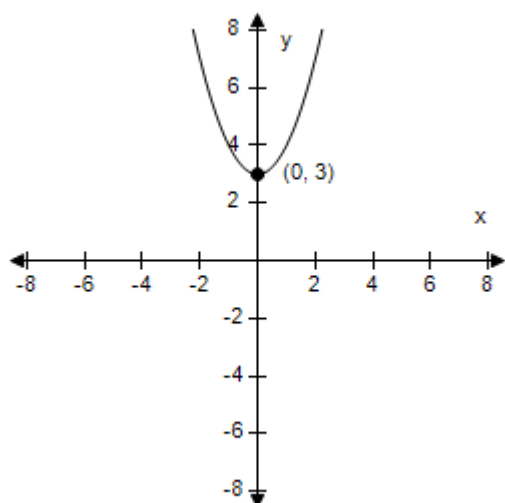
ANSWER: a
POINTS: 1
REFERENCES: 1.1.35
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/19/2014 2:08 AM

32. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

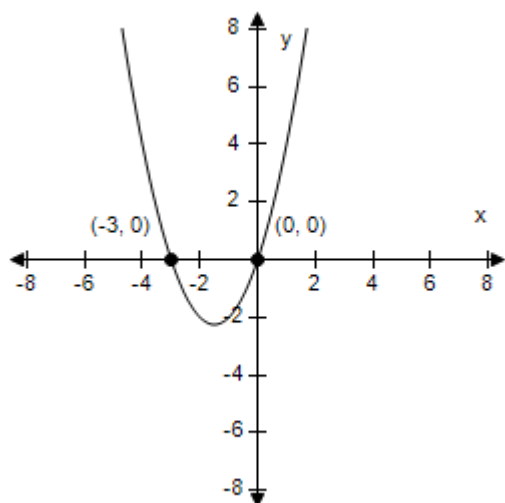
$$y = x^2 + 3$$

- a. x -intercept : none
 y -intercept : (0, 3)
The graph has y -symmetry.

Section 1.1 - Graphs of Equations

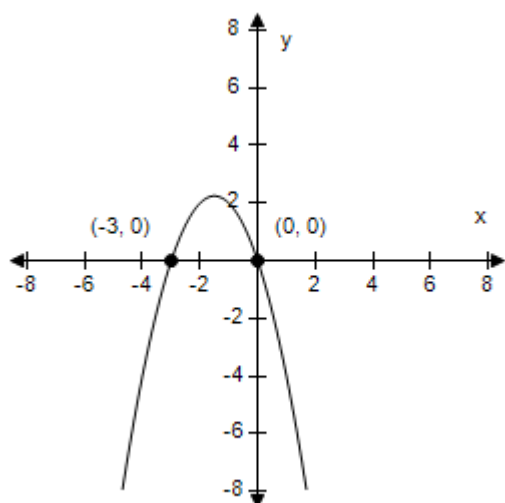


- b. x -intercepts : $(0, 0)$, $(-3, 0)$
 y -intercept : $(0, 0)$
No symmetry

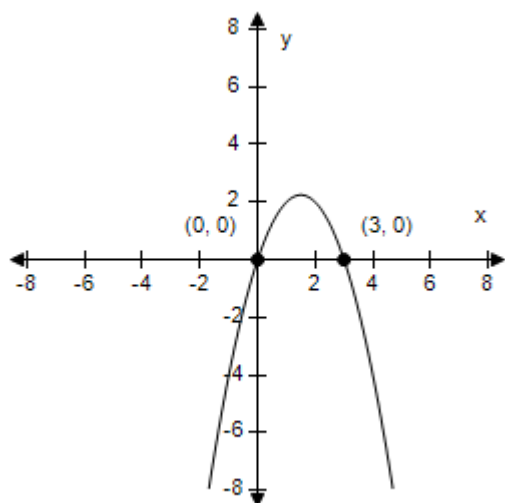


- c. x -intercepts : $(0, 0)$, $(-3, 0)$
 y -intercept : $(0, 0)$
No symmetry

Section 1.1 - Graphs of Equations

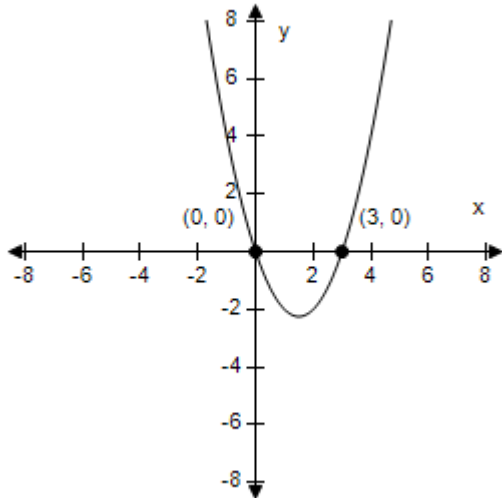


- d. x-intercepts : $(0, 0)$, $(3, 0)$
y-intercept : $(0, 0)$
No symmetry



- e. x-intercepts : $(0, 0)$, $(3, 0)$
y-intercept : $(0, 0)$
No symmetry

Section 1.1 - Graphs of Equations

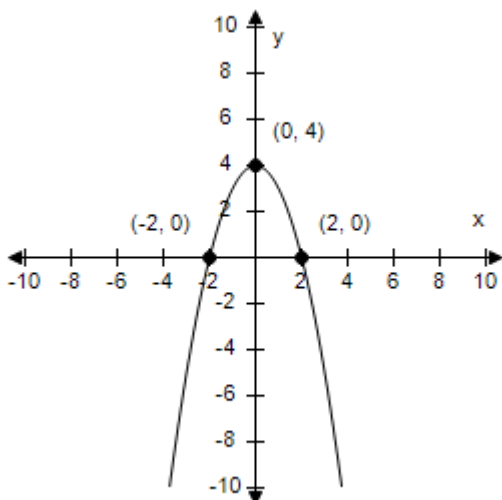


ANSWER: a
POINTS: 1
REFERENCES: 1.1.41
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/6/2021 10:39 AM

33. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

$$y = x^2 - 4$$

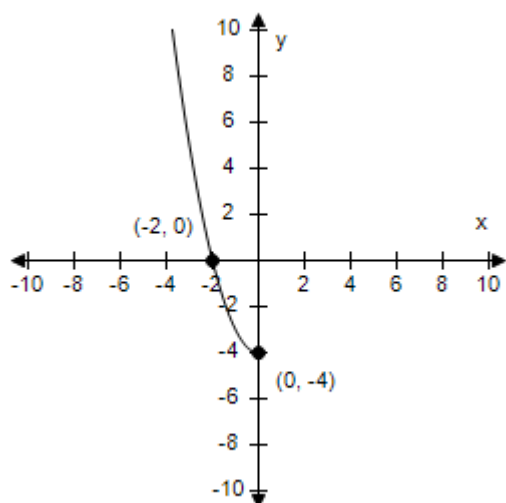
a.



Intercepts: (-2, 0), (2, 0), (0, 4)

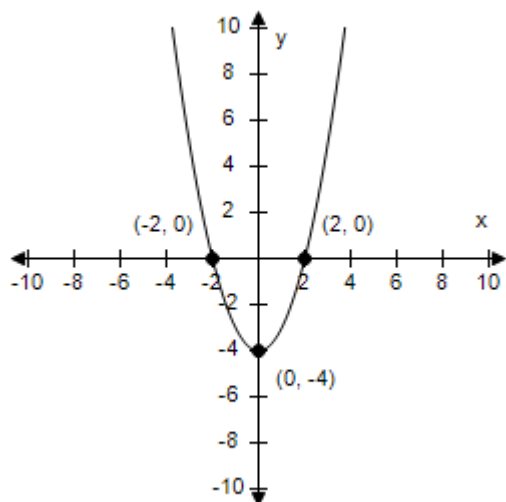
b.

Section 1.1 - Graphs of Equations



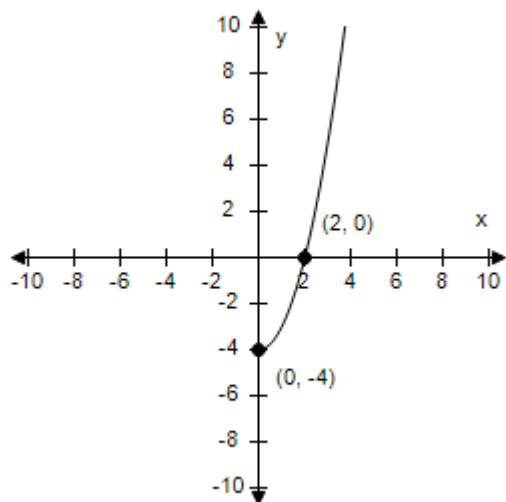
Intercepts: $(-2, 0)$, $(0, -4)$

c.



Intercepts: $(-2, 0)$, $(2, 0)$, $(0, -4)$

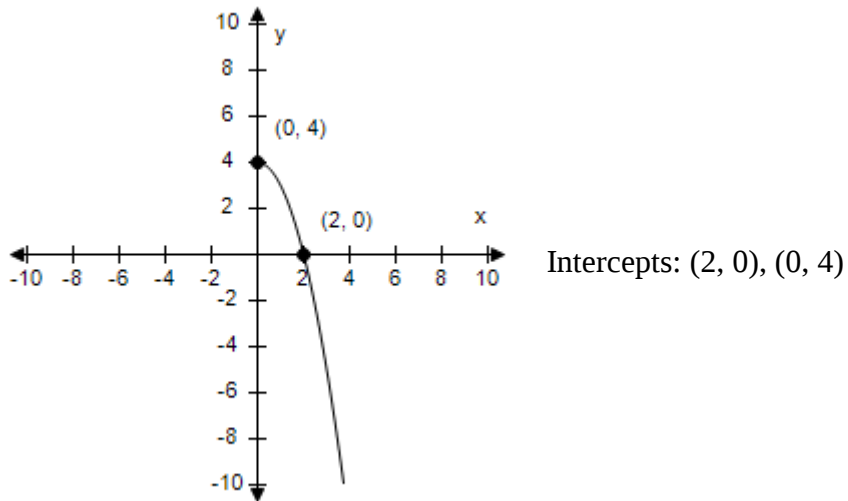
d.



Intercepts: $(2, 0)$, $(0, -4)$

Section 1.1 - Graphs of Equations

e.

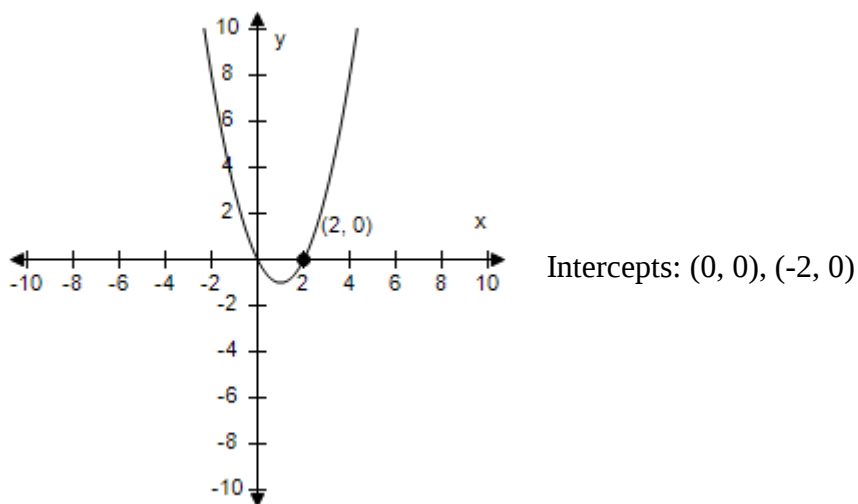


ANSWER: c
POINTS: 1
REFERENCES: 1.1.51
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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34. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

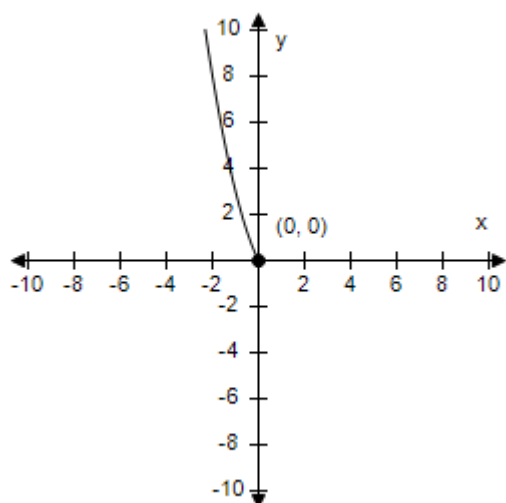
$$y = x^2 - 2x$$

a.



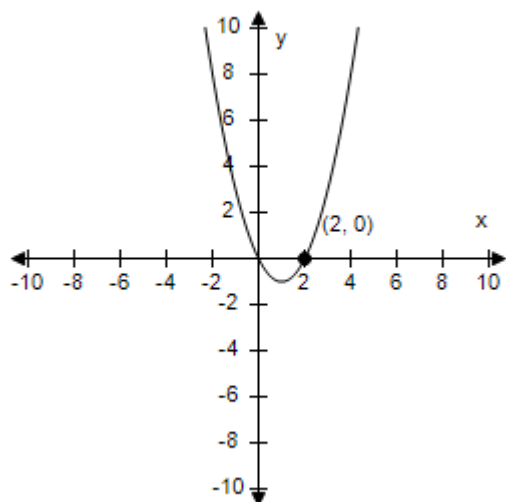
b.

Section 1.1 - Graphs of Equations



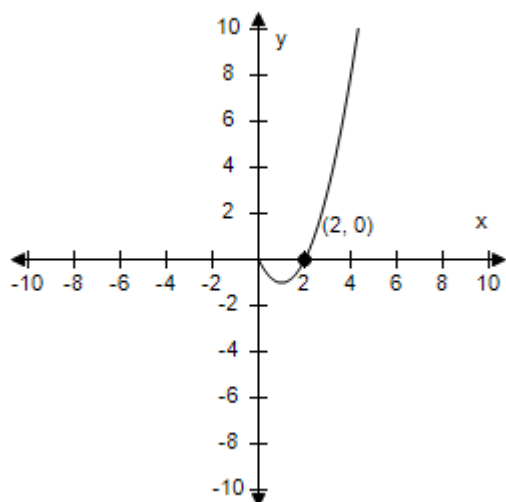
Intercepts: (0, 0)

c.



Intercepts: (0, 0), (2, 0)

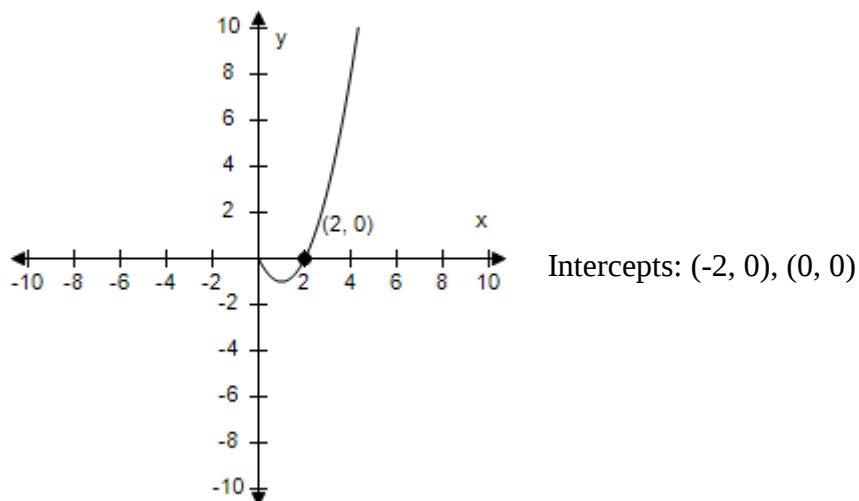
d.



Intercepts: (2, 0), (0, 0)

Section 1.1 - Graphs of Equations

e.



ANSWER: c
POINTS: 1
REFERENCES: 1.1.52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 5/9/2015 6:21 AM

35. Determine which point lies on the graph of the equation $y = 2x^2 + 4x + 5$.

- a. $(0, 5)$
- b. $(1, 5)$
- c. $(0, 3)$
- d. $(2, 4)$
- e. $(1, 3)$

ANSWER: a
POINTS: 1
REFERENCES: 1.1.9a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 7/6/2021 10:40 AM

36. Determine which point does **not** lie on the graph of the equation $y = -8 - |x - 5|$.

- a. $(-2, -15)$
- b. $(-4, -17)$

Section 1.1 - Graphs of Equations

c. (7, -10)

d. (4, -6)

e. (0, -13)

ANSWER: d

POINTS: 1

REFERENCES: 1.1.10a

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

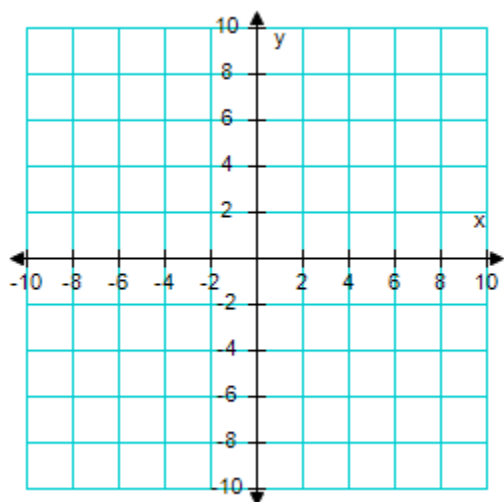
STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:15 PM

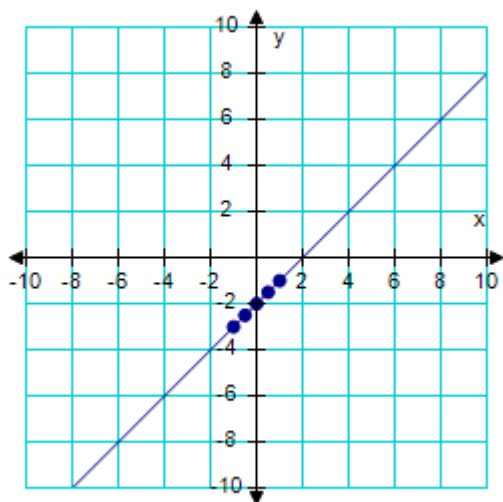
DATE MODIFIED: 11/19/2014 3:10 AM

37. Create and complete a table to find the x and y coordinates of points that lie on the graph of the equation below. Plot at least 5 points along with the graph of the equation.

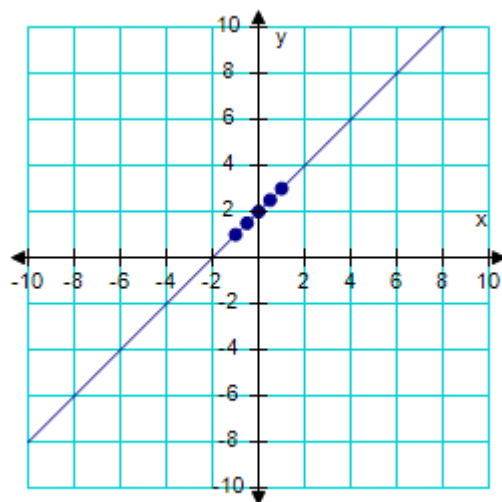
$$y = x + 2$$



a.

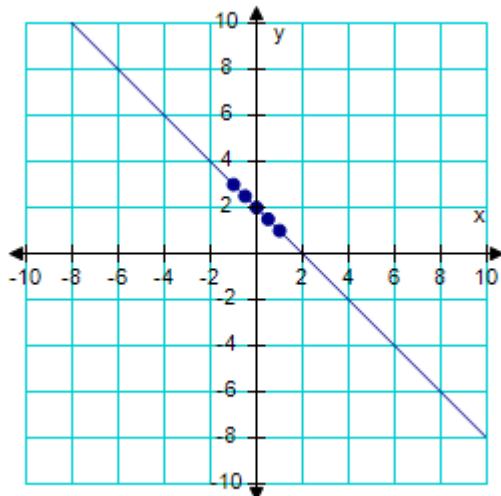


b.

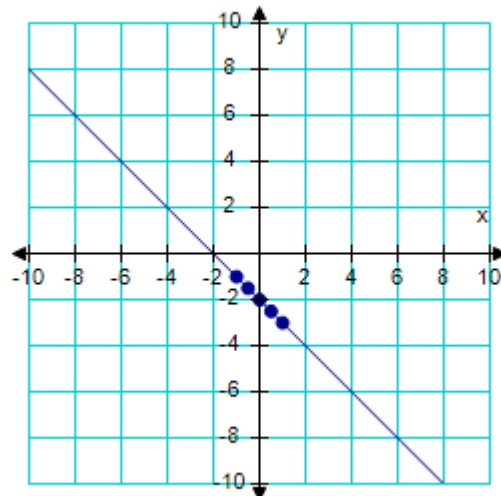


Section 1.1 - Graphs of Equations

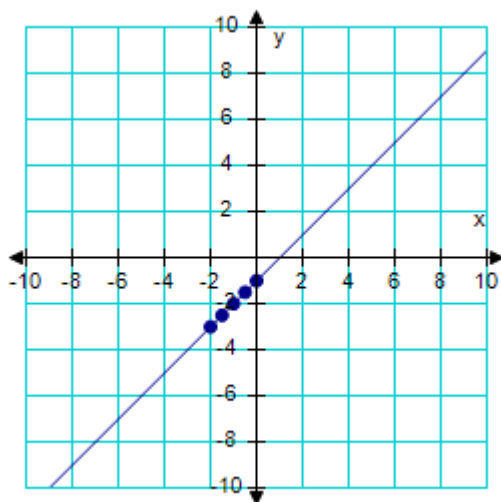
c.



d.



e.



ANSWER: b
 POINTS: 1
 REFERENCES: 1.1.15
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
 DATE CREATED: 6/10/2014 4:15 PM
 DATE MODIFIED: 11/20/2014 1:33 AM

38. Find the x - and y -intercepts of the graph of the equation $y = |13x - 7|$.

a. x -intercept: $\left(-\frac{7}{13}, 0\right)$

y -intercept: $(0, 13)$

b.

Section 1.1 - Graphs of Equations

x-intercept: $\left(-\frac{13}{7}, 0\right)$

y-intercept: $(0, -7)$

c. x-intercept: $(-7, 0)$

y-intercept: $(0, 13)$

d. x-intercept: $\left(-\frac{13}{7}, 0\right)$

y-intercept: none

e. x-intercept: $\left(\frac{7}{13}, 0\right)$

y-intercept: $(0, 7)$

ANSWER: e

POINTS: 1

REFERENCES: 1.1.21

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 11/20/2014 2:07 AM

DATE MODIFIED: 11/20/2014 3:05 AM

39. Find the x- and y-intercepts of the graph of the equation $y^2 = 8x + 5$.

a. x-intercept: $\left(\frac{5}{8}, 0\right)$

y-intercept: $(0, -\sqrt{5})$

b. x-intercept: $\left(\frac{5}{8}, 0\right)$

y-intercepts: $(0, \pm\sqrt{5})$

c. x-intercept: $\left(0, \frac{5}{8}\right)$

y-intercepts: $(0, \pm\sqrt{5})$

d. x-intercept: $\left(\frac{5}{8}, 0\right)$

y-intercept: $(0, \sqrt{5})$

e. x-intercept: $\left(\frac{5}{8}, 0\right)$

y-intercept: $(0, \sqrt{5})$

ANSWER: b

POINTS: 1

REFERENCES: 1.1.22

Section 1.1 - Graphs of Equations

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 11/20/2014 2:42 AM

DATE MODIFIED: 7/6/2021 10:41 AM

40. Use algebraic tests to check the following for symmetry with respect to the axes and the origin.

$$3x + 2y^6 = 0$$

- a. Symmetric with respect to the origin.
- b. No symmetry.
- c. Symmetric with respect to the y-axis.
- d. Symmetric with respect to the x-axis.

ANSWER: d

POINTS: 1

REFERENCES: 1.1.26

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:15 PM

DATE MODIFIED: 11/20/2014 3:10 AM

41. Use algebraic tests to check the following for symmetry with respect to the axes and the origin.

$$y = 4x^{20} - x^{10} - 3$$

- a. No symmetry.
- b. Symmetric with respect to the y-axis.
- c. Symmetric with respect to the origin.
- d. Symmetric with respect to the x-axis.

ANSWER: b

POINTS: 1

REFERENCES: 1.1.28

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

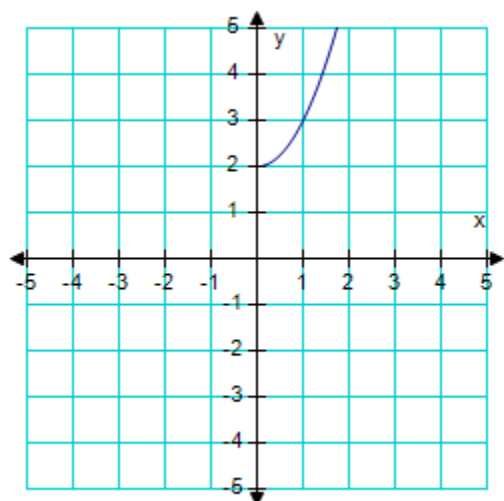
STUDENT ENTRY MODE: Basic

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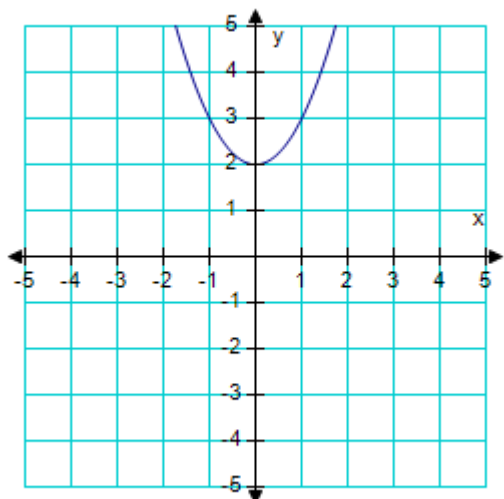
42. Assume the graph has the indicated type of symmetry. Sketch the complete graph.

Section 1.1 - Graphs of Equations

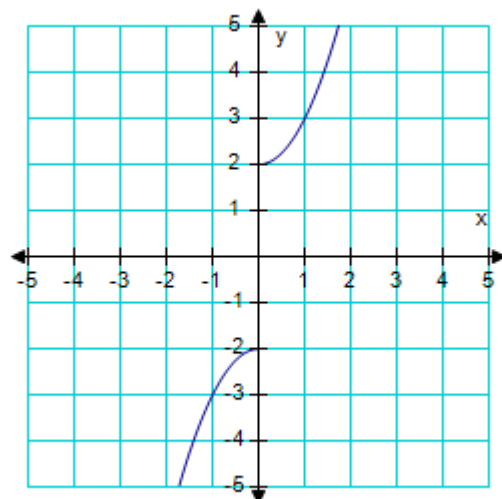


symmetric with respect to the *origin*.

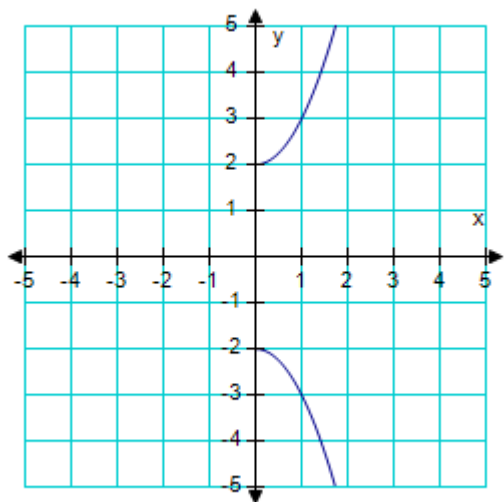
a.



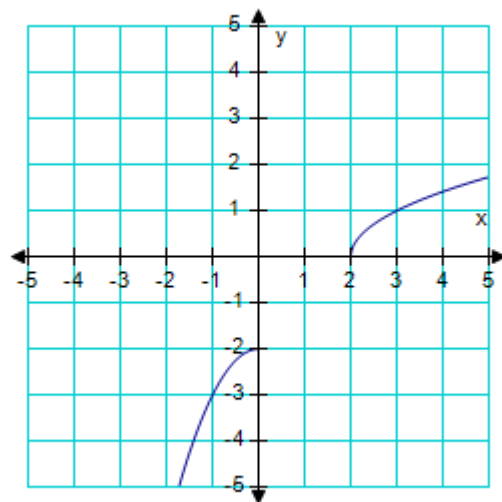
b.



c.

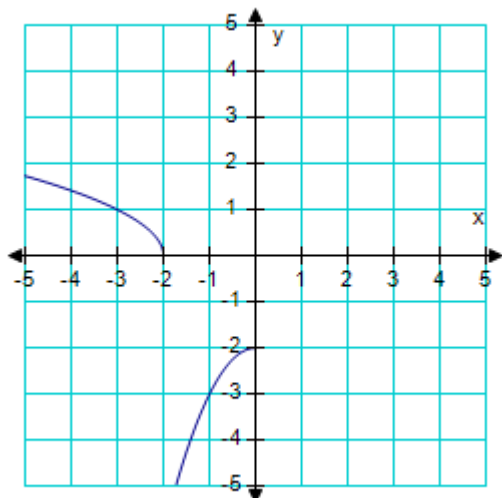


d.



Section 1.1 - Graphs of Equations

e.



ANSWER: b
POINTS: 1
REFERENCES: 1.1.35
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/20/2014 3:48 AM

43. Find the x- and y-intercepts of the graph of the equation $y = 36 - 6x$.

- a. x-intercept: (6, 0)
y-intercept: (0, -6)
- b. x-intercept: (36, 0)
y-intercept: (0, 6)
- c. x-intercept: (-6, 0)
y-intercept: (0, -36)
- d. x-intercept: (36, 0)
y-intercept: (0, 36)
- e. x-intercept: (6, 0)
y-intercept: (0, 36)

ANSWER: e
POINTS: 1
REFERENCES: 1.1.22
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/20/2014 3:50 AM

Section 1.1 - Graphs of Equations

44. Find the x - and y -intercepts of the graph of the equation $y = \sqrt{-8x - 7}$.

a. x -intercept: $\left(-\frac{8}{7}, 0\right)$

y -intercept: none

b. x -intercept: $\left(-\frac{7}{8}, 0\right)$

y -intercept: $(0, -7)$

c. x -intercept: $(7, 0)$

y -intercept: none

d. x -intercept: $(-8, 0)$

y -intercept: $(0, 7)$

e. x -intercept: $\left(-\frac{7}{8}, 0\right)$

y -intercept: none

ANSWER: e

POINTS: 1

REFERENCES: 1.1.19

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 11/20/2014 6:18 AM

DATE MODIFIED: 5/11/2015 5:16 AM

45. Write the standard form of the equation of the circle with the given characteristics.

center: $(-1, -5)$; radius: 6

a. $(x - 1)^2 + (y - 5)^2 = 36$

b. $(x + 5)^2 + (y + 1)^2 = 6$

c. $(x + 5)^2 + (y + 1)^2 = 36$

d. $(x - 5)^2 + (y - 1)^2 = 6$

e. $(x + 1)^2 + (y + 5)^2 = 36$

ANSWER: e

POINTS: 1

REFERENCES: 1.1.63

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:15 PM

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46. Write the standard form of the equation of the circle with the given characteristics.

Section 1.1 - Graphs of Equations

center: $(-5, -4)$; solution point: $(-3, -7)$

a. $(x + 5)^2 + (y + 4)^2 = 13$

b. $(x - 5)^2 + (y + 4)^2 = 1$

c. $(x - 5)^2 + (y - 4)^2 = 13$

d. $(x - 5)^2 + (y - 4)^2 = 17$

e. $(x + 5)^2 + (y - 4)^2 = 17$

ANSWER:

a

POINTS:

1

REFERENCES:

1.1.65

QUESTION TYPE:

Multi-Mode (Multiple choice)

HAS VARIABLES:

True

STUDENT ENTRY MODE:

Basic

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DATE MODIFIED:

11/20/2014 7:09 AM

47. Write the standard form of the equation of the circle with the given characteristics.

endpoints of a diameter: $(3, 4)$, $(7, 8)$

a. $(x - 5)^2 + (y - 6)^2 = 8$

b. $(x - 6)^2 + (y - 5)^2 = 8$

c. $(x + 5)^2 + (y + 6)^2 = 8$

d. $(x + 5)^2 + (y - 6)^2 = 340$

e. $(x - 5)^2 + (y + 6)^2 = 340$

ANSWER:

a

POINTS:

1

REFERENCES:

1.1.68

QUESTION TYPE:

Multi-Mode (Multiple choice)

HAS VARIABLES:

True

STUDENT ENTRY MODE:

Basic

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DATE MODIFIED:

11/20/2014 7:50 AM

48. Find the center and radius of the circle $x^2 + y^2 = 49$.

a. center: $(0, 0)$, radius: 11

b. center: $(-1, 1)$, radius: 11

c. center: $(0, 0)$, radius: 7

d. center: $(-1, -1)$, radius: 7

e. center: $(-7, -11)$, radius: 7

ANSWER:

c

Section 1.1 - Graphs of Equations

POINTS: 1
REFERENCES: 1.1.69
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 2:03 AM

49. Find the center and radius of the circle $(x - 5)^2 + (y - 1)^2 = 25$.

- a. center: (1, 5), radius 5
- b. center: (5, 1), radius 25
- c. center: (-5, -1), radius 5
- d. center: (-5, -1), radius 25
- e. center: (5, 1), radius 5

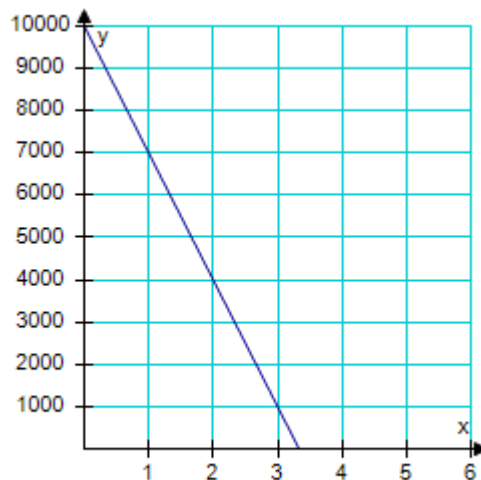
ANSWER: e
POINTS: 1
REFERENCES: 1.1.71
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 2:06 AM

50. You purchase a jet ski for \$10,000. The depreciated value, y , after x years is given by $y = 10,000 - 1,500x$. Sketch the graph of the equation given $0 \leq x \leq 6$.

a.

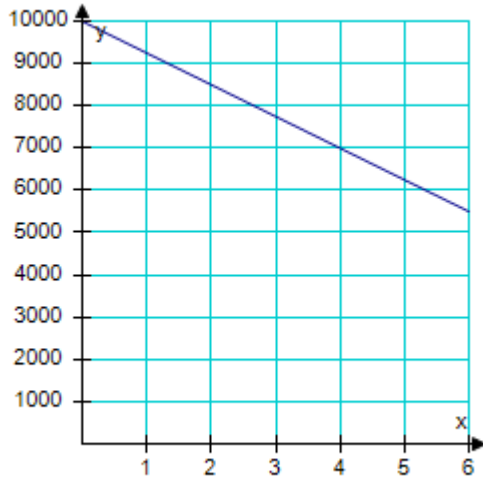


b.

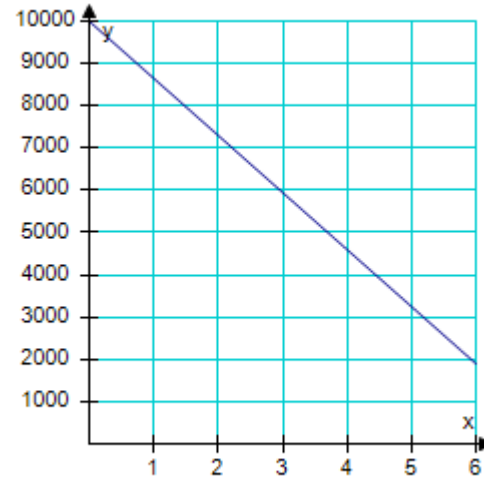


Section 1.1 - Graphs of Equations

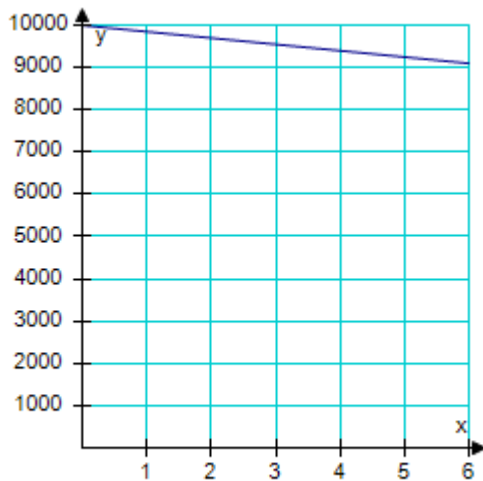
c.



d.



e.



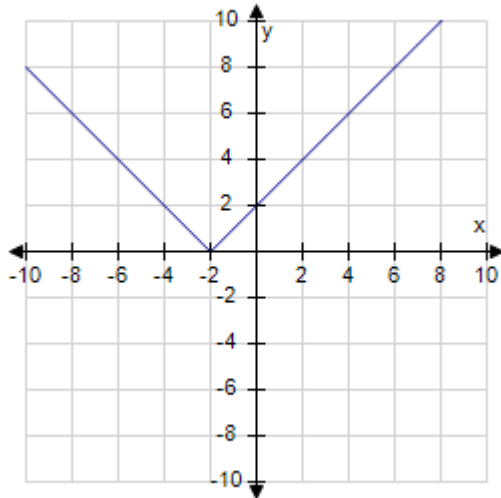
ANSWER: a
 POINTS: 1
 REFERENCES: 1.1.76
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
 DATE CREATED: 6/10/2014 4:15 PM
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51. Find the graph of the equation.

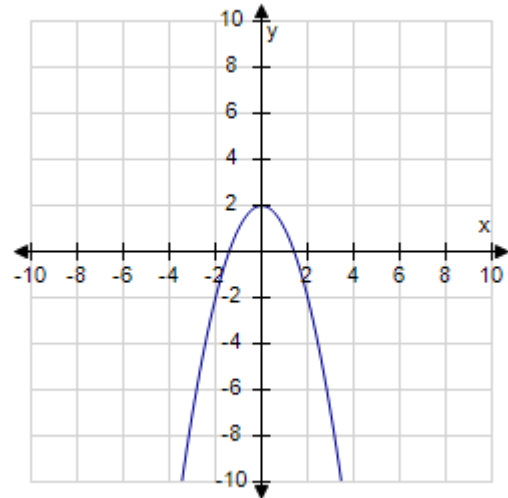
$$f(x) = |x - 2|$$

Section 1.1 - Graphs of Equations

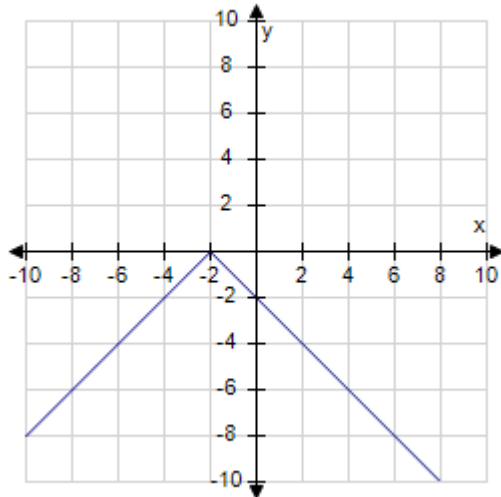
a.



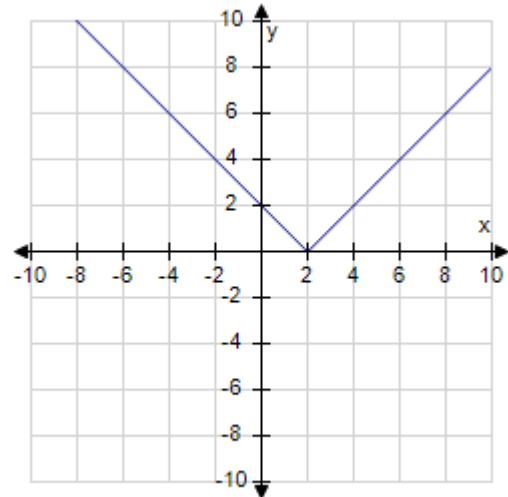
b.



c.



d.



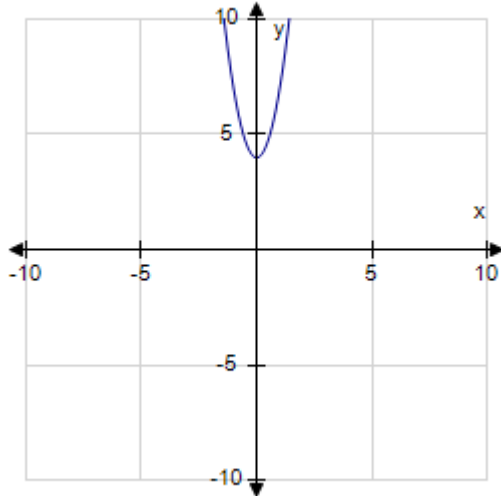
ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 6/10/2014 4:15 PM
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52. Find the graph of the equation.

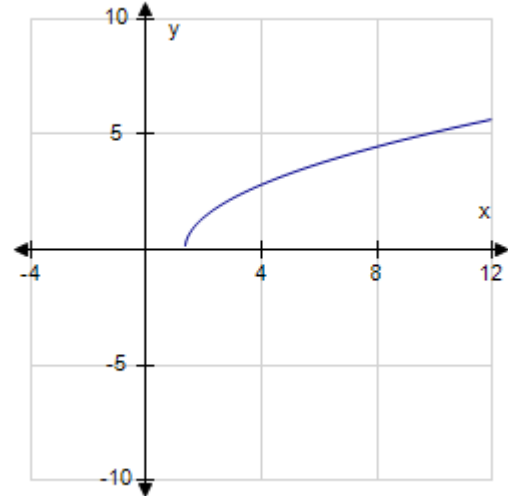
$$f(x) = \sqrt{3x - 4}$$

Section 1.1 - Graphs of Equations

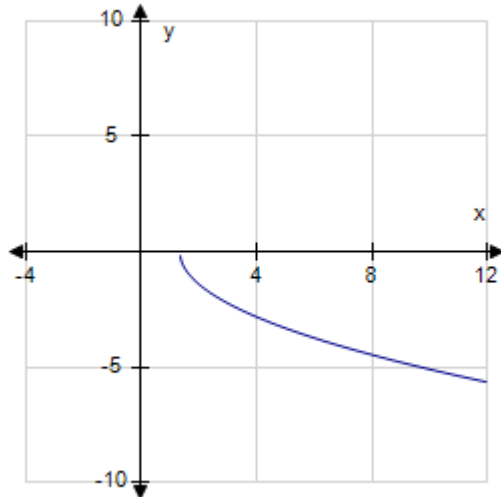
a.



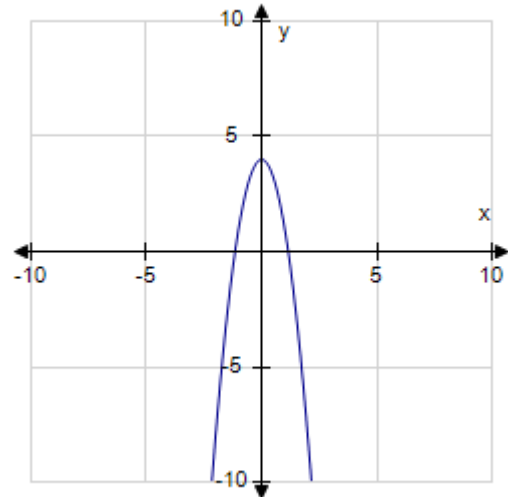
b.



c.



d.



ANSWER: b

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 6/10/2014 4:15 PM

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53. Find the value of y that corresponds to $x = -4$ in the graph of the equation $2x + 3y = 13$.

- a. 9
- b. -7
- c. -9
- d. 21
- e. 7

ANSWER: e

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Section 1.1 - Graphs of Equations

POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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54. Find the value of x that corresponds to $y = 7$ in the graph of the equation $4x - 3y = -37$.

- a. 4
- b. -16
- c. -3
- d. 3
- e. -4

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 3:10 AM

55. Find the y -intercept of the graph of the equation $y = 3x + 18$.

- a. (0, 3)
- b. (18, 0)
- c. (-6, 0)
- d. (0, 18)
- e. (0, -6)

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 3:14 AM

56. Find the x -intercept of the graph of the equation $y = 3x + 15$.

- a. (0, -5)
- b. (0, 15)
- c. (15, 0)
- d. (0, 3)
- e. (-5, 0)

ANSWER: e

Section 1.1 - Graphs of Equations

POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
DATE MODIFIED: 11/21/2014 3:16 AM

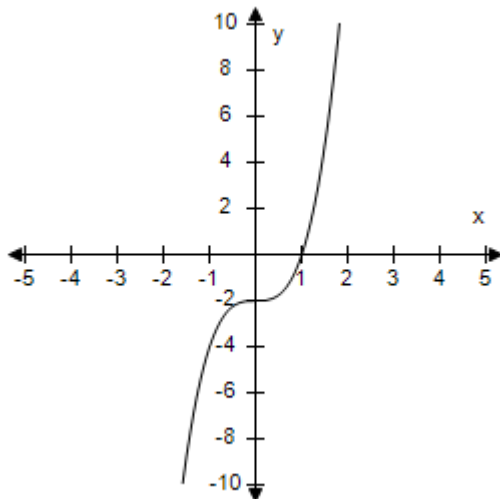
57. Find the y-intercept of the graph of the equation $4y = 3x + 12$.

- a. (0, -3)
- b. (-4, 0)
- c. (0, 3)
- d. (0, -4)
- e. (0, 12)

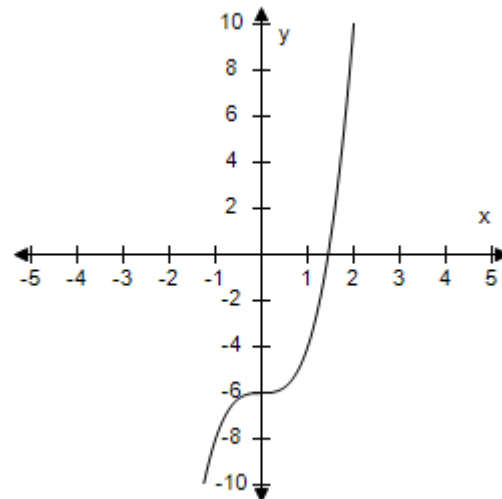
ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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58. Sketch the graph of the equation $y = 2x^3 - 4$.

a.

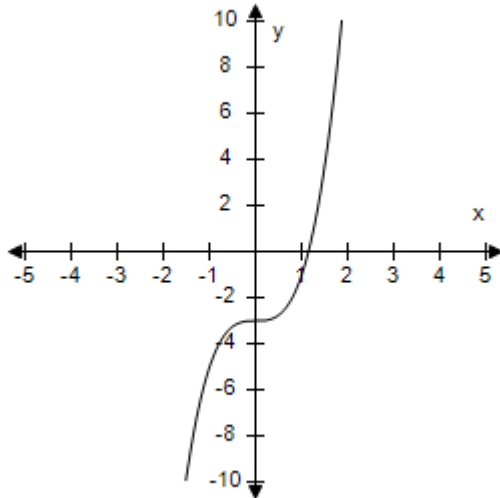


b.

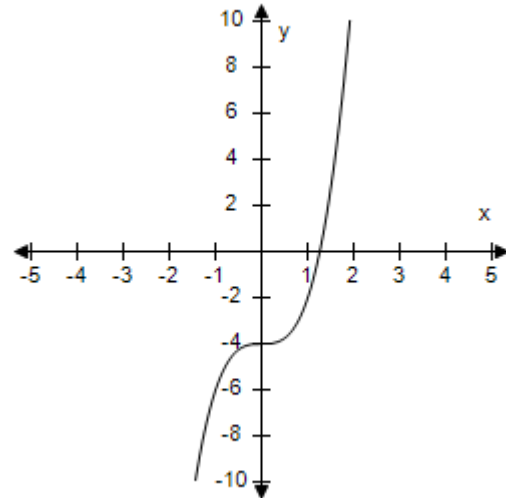


Section 1.1 - Graphs of Equations

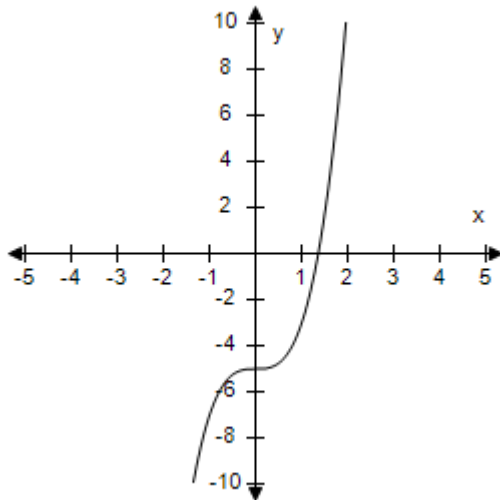
c.



d.



e.

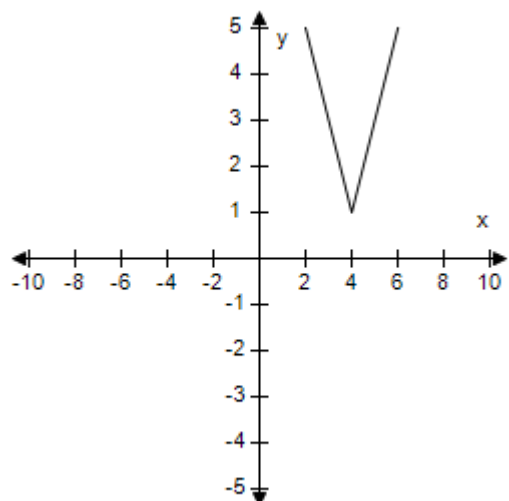


ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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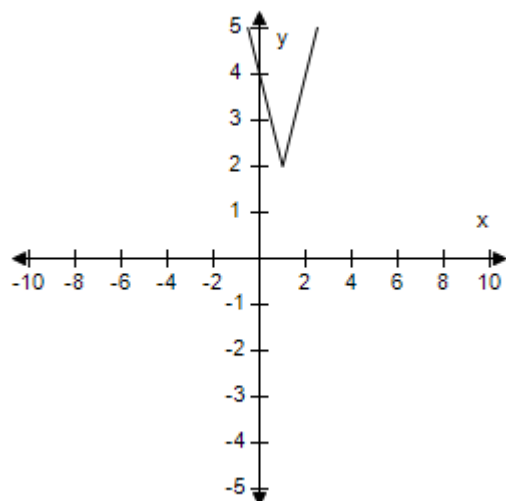
59. Sketch the graph of the equation $y = 2|x - 2| + 1$.

Section 1.1 - Graphs of Equations

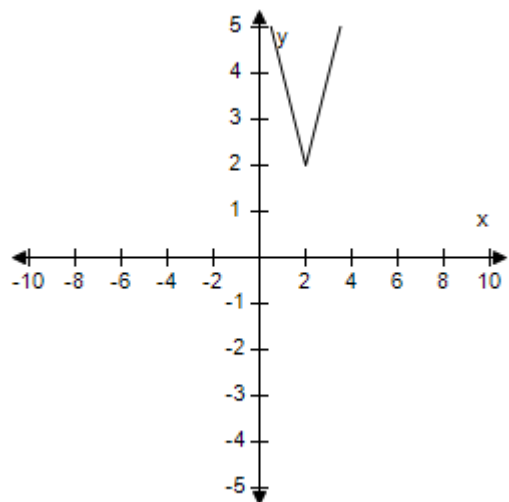
a.



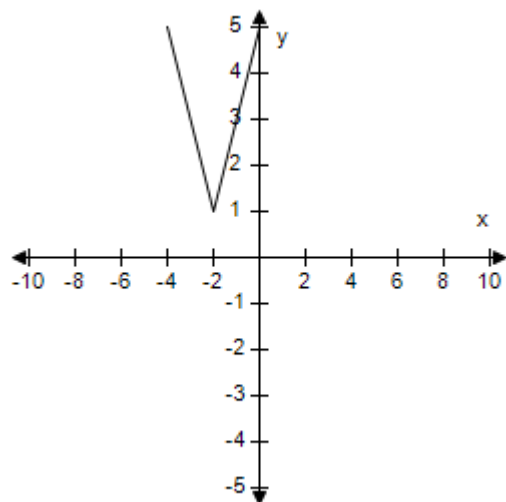
b.



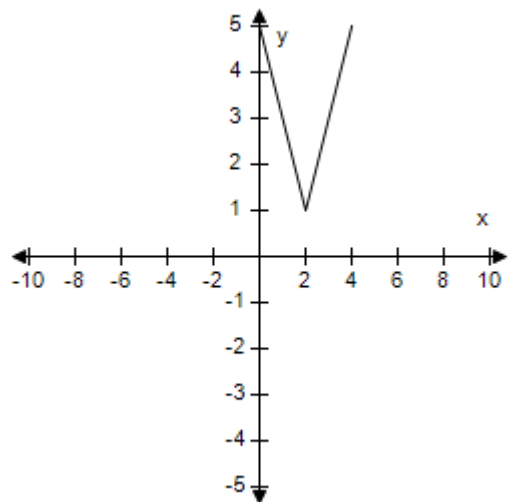
c.



d.



e.



ANSWER:

e

Section 1.1 - Graphs of Equations

POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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60. Find the x -intercept of the graph of the equation $y = 3\sqrt{x-6}$.

- a. (0, -6)
- b. (0, 6)
- c. (6, 0)
- d. (-6, 0)
- e. (0, -18)

ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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61. Find any x - or y -intercepts for the graph of the equation $y = x^2 - 8x + 12$.

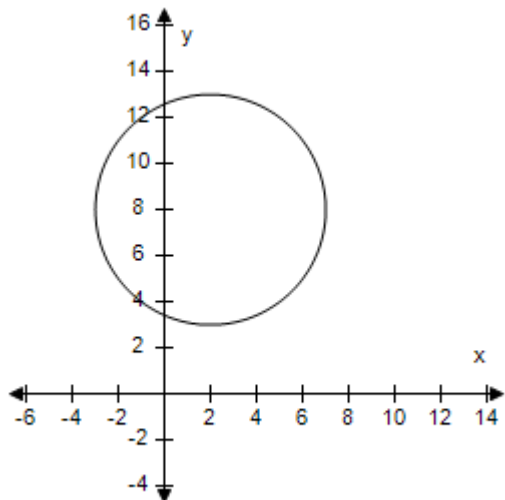
- a. x -intercept: (0, 12)
 y -intercepts: (2, 0), (6, 0)
- b. x -intercepts: (-2, 0), (-6, 0)
 y -intercept: (0, 12)
- c. x -intercepts: (2, 0), (6, 0)
 y -intercepts: none
- d. x -intercepts: (0, 2), (0, 6)
 y -intercept: (12, 0)
- e. x -intercepts: (2, 0), (6, 0)
 y -intercept: (0, 12)

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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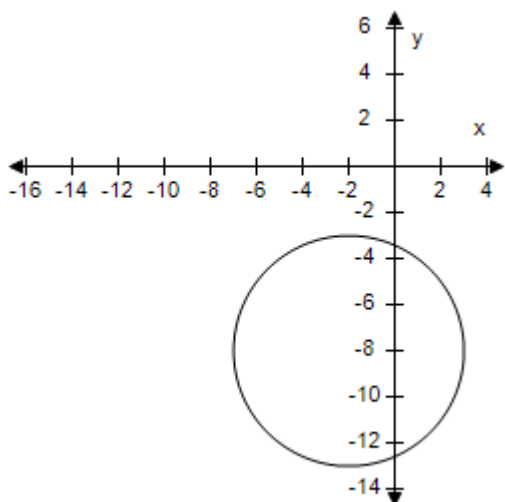
62. Graph the circle $(x-2)^2 + (y-8)^2 = 25$.

- a.
- b.

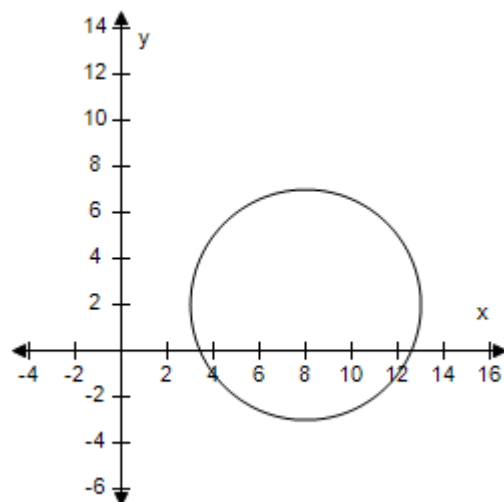
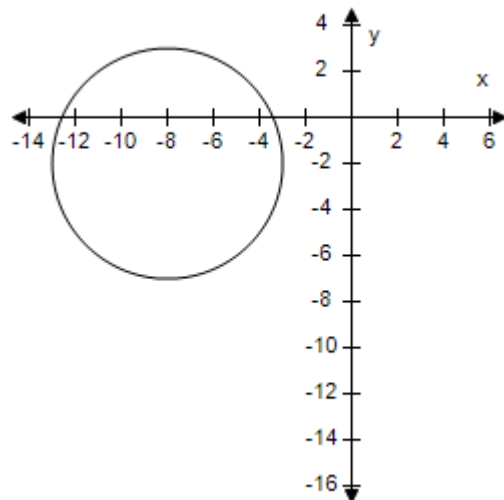
Section 1.1 - Graphs of Equations



c.



d.



e. None of the above.

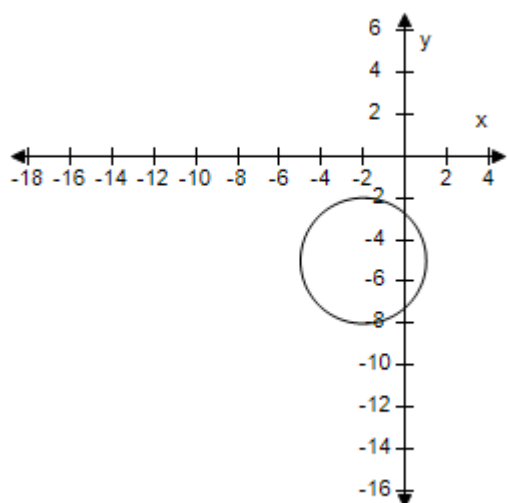
ANSWER: a
 POINTS: 1
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
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63. Graph the circle $(x + 2)^2 + (y - 5)^2 = 9$.

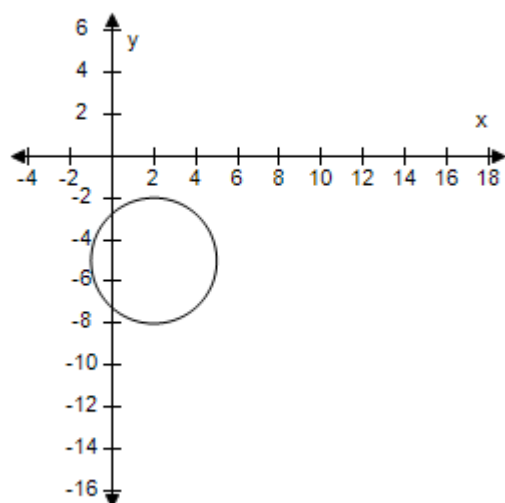
a.

b.

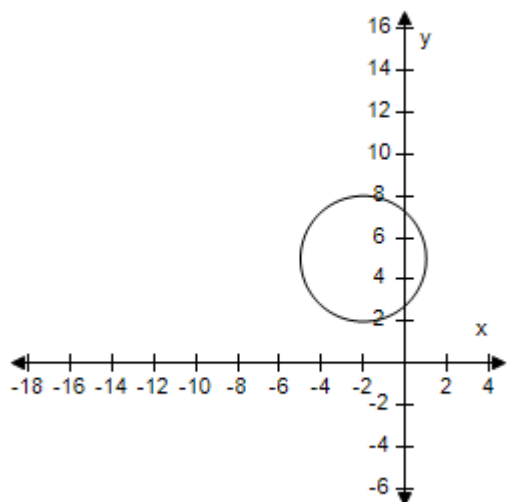
Section 1.1 - Graphs of Equations



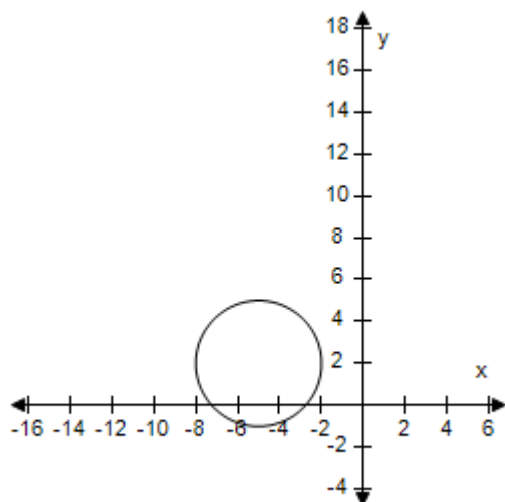
c.



d.



e.



Section 1.1 - Graphs of Equations

ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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Section 1.2 - Linear Equations in One Variable

1. Determine whether the value of $x = 0$ is a solution of the equation.

$$5x - 3 = 3x + 5$$

a. Yes

b. No

ANSWER: b

POINTS: 1

REFERENCES: 1.2.7

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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2. Determine whether the value of $x = -1$ is a solution of the equation.

$$11 - 4x = 4x - 10$$

a. No

b. Yes

ANSWER: a

POINTS: 1

REFERENCES: 1.2.8

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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3. Determine whether the value of $x = -2$ is a solution of the equation.

$$6x^3 + 2x - 3 = 5x^3 + 2x - 11$$

a. Yes

b. No

ANSWER: a

POINTS: 1

REFERENCES: 1.2.10

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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4. Determine whether the value of $x = 1$ is a solution of the equation.

Section 1.2 - Linear Equations in One Variable

$$\frac{x}{4} + \frac{6x}{5} = \frac{29}{20}$$

- a. No
- b. Yes

ANSWER: b
POINTS: 1
REFERENCES: 1.2.12
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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5. Determine whether the value of $x = 5$ is a solution of the equation.

$$5 + \frac{1}{x+2} = 6$$

- a. No
- b. Yes

ANSWER: a
POINTS: 1
REFERENCES: 1.2.13
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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6. Determine whether the value of $x = 12$ is a solution of the equation.

$$\frac{(x+6)(x-2)}{2} = 90$$

- a. No
- b. Yes

ANSWER: b
POINTS: 1
REFERENCES: 1.2.14
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.2 - Linear Equations in One Variable

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7. Determine whether the value of $x = 9$ is a solution of the equation.

$$\sqrt{3x - 2} = 5$$

- a. No
- b. Yes

ANSWER: b

POINTS: 1

REFERENCES: 1.2.15

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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8. Determine whether the equation $5(x + 2) = 5x + 10$ is an identity or a conditional equation. If conditional, indicate the condition.

- a. conditional with $x = -2$ satisfying the equation
- b. conditional with $x = 0$ satisfying the equation
- c. identity
- d. conditional with $x = 2$ satisfying the equation
- e. conditional with no solution

ANSWER: c

POINTS: 1

REFERENCES: 1.2.19

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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9. Determine whether the equation $2(x - 1) = 2x + 3$ is an identity or a conditional equation. If conditional, indicate the condition.

- a. conditional with $x = 0$ satisfying the equation
- b. conditional with $x = -\frac{5}{4}$ satisfying the equation
- c. identity
- d. conditional with no solution
- e. conditional with $x = \frac{5}{4}$ satisfying the equation

Section 1.2 - Linear Equations in One Variable

ANSWER: d
POINTS: 1
REFERENCES: 1.2.21
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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10. Determine whether the equation $6(x + 5) - 9x = 6x + 5$ is an identity or a conditional equation. If conditional, indicate the condition.

- a. conditional with $x = \frac{25}{9}$ satisfying the equation
- b. conditional with $x = 0$ satisfying the equation
- c. conditional with $x = -\frac{35}{9}$ satisfying the equation
- d. conditional with no solution
- e. identity

ANSWER: a
POINTS: 1
REFERENCES: 1.2.24
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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11. Justify each step of the solution.

$$\begin{aligned}8x + 64 &= 95 \\8x + 64 - 64 &= 95 - 64 \\8x &= 31 \\\frac{8x}{8} &= \frac{31}{8} \\x &= \frac{31}{8}\end{aligned}$$

- a. Original equation.
Divide each side by 8.
Simplify.
Subtract 64 from each side.
Simplify.
- b. Original equation.

Section 1.2 - Linear Equations in One Variable

Subtract 64 from each side.

Simplify.

Divide each side by 8.

Simplify.

c. Simplify.

Original equation.

Subtract 64 from each side.

Divide each side by 8.

Simplify.

d. Original equation.

Subtract 64 from each side.

Divide each side by 8.

Simplify.

Simplify.

e. Original equation.

Simplify.

Subtract 64 from each side.

Divide each side by 8.

Simplify.

ANSWER: b

POINTS: 1

REFERENCES: 1.2.31

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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12. Justify each step of the solution.

$$9(x - 11) + 29 = 20$$

$$9x - 99 + 29 = 20$$

$$9x - 70 = 20$$

$$9x - 70 + 70 = 20 + 70$$

$$9x = 90$$

$$\frac{9x}{9} = \frac{90}{9}$$

$$x = 10$$

a. Original equation.

Simplify.

Simplify.

Add 70 to each side.

Remove parentheses.

Divide each side by 9.

Simplify.

Section 1.2 - Linear Equations in One Variable

- b. Original equation.
Remove parentheses.
Add 70 to each side.
Divide each side by 9.
Simplify.
Simplify.
Simplify.
- c. Original equation.
Remove parentheses.
Simplify.
Add 70 to each side.
Simplify.
Divide each side by 9.
Simplify.
- d. Original equation.
Divide each side by 9.
Simplify.
Add 70 to each side.
Simplify.
Remove parentheses.
Simplify.
- e. Simplify.
Original equation.
Remove parentheses.
Add 70 to each side.
Simplify.
Divide each side by 9.
Simplify.

ANSWER: c
POINTS: 1
REFERENCES: 1.2.32
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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13. Solve the equation.

$$x + 8 = 12$$

- a. $x = 4$
- b. $x = 5$
- c. $x = 21$
- d. $x = 22$

Section 1.2 - Linear Equations in One Variable

e. $x = 20$

ANSWER: a
POINTS: 1
REFERENCES: 1.2.33
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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14. Solve the equation.

$$-1 - 8x = 2$$

a. $x = \frac{3}{4}$

b. $x = -\frac{1}{4}$

c. $x = -\frac{3}{8}$

d. $x = -\frac{1}{8}$

e. $x = \frac{1}{8}$

ANSWER: c
POINTS: 1
REFERENCES: 1.2.34
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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15. Solve the equation.

$$-1 - 5x = 9$$

a. $x = 3$

b. $x = -5$

c. $x = -2$

d. $x = 1$

e. $x = -4$

ANSWER: c

Section 1.2 - Linear Equations in One Variable

POINTS: 1
REFERENCES: 1.2.35
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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16. Solve the equation.

$$7y + 1 = 2y - 7 + 8y$$

a. $y = \frac{8}{3}$

b. $y = \frac{3}{8}$

c. $y = \frac{2}{7}$

d. $y = \frac{7}{2}$

e. $y = -\frac{8}{3}$

ANSWER: a
POINTS: 1
REFERENCES: 1.2.40
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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17. Solve the equation.

$$x - 6(2x + 6) = 6 - 11x$$

a. $x = 6$

b. $x = -11$

c. $x = -6$

d. $x = 11$

e. No solution

ANSWER: e
POINTS: 1
REFERENCES: 1.2.41
QUESTION TYPE: Multi-Mode (Multiple choice)

Section 1.2 - Linear Equations in One Variable

HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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18. Solve the equation.

$$57x - 56 = 8x + 7(7x - 8)$$

- a. $x = 8$
- b. $x = 57$
- c. $x = -8$
- d. $x = -57$
- e. All real numbers

ANSWER: e
POINTS: 1
REFERENCES: 1.2.42
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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19. Solve the equation.

$$-7(x + 9) + 9 = 6(x + 6)$$

- a. $x = -\frac{18}{13}$
- b. $x = \frac{90}{13}$
- c. $x = \frac{27}{13}$
- d. $x = -\frac{9}{13}$
- e. $x = -\frac{90}{13}$

ANSWER: e
POINTS: 1
REFERENCES: 1.2.43
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.2 - Linear Equations in One Variable

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20. Solve the equation.

$$\frac{x}{8} - \frac{x}{2} = 6 + \frac{6x}{16}$$

- a. $x = 8$
- b. $x = -8$
- c. $x = 16$
- d. $x = 12$
- e. $x = 96$

ANSWER: b

POINTS: 1

REFERENCES: 1.2.44

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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21. Solve the equation.

$$-\frac{1}{5}(z - 8) + \frac{1}{8}(z + 3) = 0$$

- a. $z = \frac{632}{3}$
- b. $z = \frac{79}{3}$
- c. $z = \frac{49}{3}$
- d. $z = \frac{1027}{3}$
- e. $z = -\frac{1027}{3}$

ANSWER: b

POINTS: 1

REFERENCES: 1.2.45

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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Section 1.2 - Linear Equations in One Variable

22. Solve the equation.

$$\frac{3x}{2} + \frac{1}{4}(x - 2) = 10$$

- a. $x = 5$
- b. $x = 3$
- c. $x = 6$
- d. $x = 8$
- e. $x = 7$

ANSWER: c
POINTS: 1
REFERENCES: 1.2.46
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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23. Solve the equation.

$$0.4x + 0.9(10 - x) = 8$$

- a. $x = 3$
- b. $x = 2$
- c. $x = 1$
- d. $x = 4$
- e. $x = -2$

ANSWER: b
POINTS: 1
REFERENCES: 1.2.47
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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24. Solve the equation.

$$0.9x + 0.1(2 - x) = 2$$

- a. $x = 3$
- b. $x = 2.25$
- c. $x = 9$

Section 1.2 - Linear Equations in One Variable

d. $x = 4.5$

e. $x = 1.125$

ANSWER: b
POINTS: 1
REFERENCES: 1.2.48
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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25. Solve the equation.

$$\frac{5x}{2} - \frac{x}{6} = 14$$

a. $x = 9$

b. $x = 10$

c. $x = 8$

d. $x = 6$

e. $x = 7$

ANSWER: d
POINTS: 1
REFERENCES: 1.2.50
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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26. Solve the equation.

$$\frac{7x}{2} + 2x = \frac{33}{2}$$

a. $x = 4$

b. $x = 5$

c. $x = 6$

d. $x = 7$

e. $x = 3$

ANSWER: e
POINTS: 1
REFERENCES: 1.2.51
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

Section 1.2 - Linear Equations in One Variable

STUDENT ENTRY MODE: Basic

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27. Solve the equation.

$$8x + 4 = 9(x - 4) - x$$

- a. $x = 9$
- b. $x = 8$
- c. $x = -8$
- d. $x = -9$
- e. No solution.

ANSWER: e

POINTS: 1

REFERENCES: 1.2.53

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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28. Solve the equation.

$$20(x + 5) - 3(5x + 1) = 5(x + 8)$$

- a. $x = 9$
- b. $x = 5$
- c. $x = 8$
- d. $x = 20$
- e. No solution.

ANSWER: e

POINTS: 1

REFERENCES: 1.2.54

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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29. Solve the equation.

$$-3(x + 4) - 4(x + 6) = 9(x - 7)$$

- a. $x = -\frac{3}{4}$

Section 1.2 - Linear Equations in One Variable

b. $x = \frac{3}{4}$

c. $x = -\frac{9}{4}$

d. $x = \frac{27}{16}$

e. $x = -\frac{27}{16}$

ANSWER: d
POINTS: 1
REFERENCES: 1.2.55
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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30. Solve the equation.

$$\frac{10+y}{y} + \frac{-6+y}{y} = 9$$

a. $y = \frac{4}{7}$

b. $y = \frac{16}{7}$

c. $y = -\frac{4}{7}$

d. $y = \frac{24}{7}$

e. $y = \frac{8}{7}$

ANSWER: a
POINTS: 1
REFERENCES: 1.2.56
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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31. Solve the equation.

Section 1.2 - Linear Equations in One Variable

$$\frac{(9x - 4)}{(9x + 4)} = \frac{4}{5}$$

- a. $x = 4$
- b. $x = 9$
- c. $x = 20$
- d. $x = 16$
- e. $x = 36$

ANSWER: a
POINTS: 1
REFERENCES: 1.2.57
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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32. Solve the equation.

$$\frac{23}{x} - 9 = \frac{8}{x} + 8$$

- a. $x = 8$
- b. $x = \frac{15}{17}$
- c. $x = \frac{23}{8}$
- d. $x = 12$
- e. $x = 23$

ANSWER: b
POINTS: 1
REFERENCES: 1.2.60
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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33. Solve the equation.

$$\frac{x}{x+3} + \frac{3}{x+3} + 5 = 0$$

- a. $x = 8$
- b. $x = -2$

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c. $x = -15$

d. $x = 11$

e. No solution.

ANSWER: e

POINTS: 1

REFERENCES: 1.2.63

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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34. Solve the equation.

$$\frac{4}{(x-8)(x-4)} = \frac{1}{x-8} + \frac{4}{x-4}$$

a. $x = 8$

b. $x = 4$

c. $x = \frac{1}{4}$

d. $x = 10$

e. No solution.

ANSWER: e

POINTS: 1

REFERENCES: 1.2.65

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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35. Solve the equation.

$$\frac{-7}{(x-5)(x+7)} = \frac{1}{x-5} + \frac{5}{x+7}$$

a. $x = -\frac{7}{3}$

b. $x = \frac{59}{6}$

c. $x = \frac{11}{6}$

Section 1.2 - Linear Equations in One Variable

d. $x = \frac{2}{3}$

e. $x = \frac{13}{2}$

ANSWER: c
POINTS: 1
REFERENCES: 1.2.66
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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36. Solve the equation.

$$\frac{1}{x-2} + \frac{1}{x+2} = \frac{34}{x^2-4}$$

- a. $x = 16$
- b. $x = 17$
- c. $x = 15$
- d. $x = 18$
- e. $x = 19$

ANSWER: b
POINTS: 1
REFERENCES: 1.2.67
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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37. Solve the equation.

$$\frac{6}{x} - \frac{2}{x+3} = \frac{3(x+5)}{x^2+3x}$$

- a. $x = 11$
- b. $x = 2$
- c. $x = 6$
- d. $x = 5$
- e. No solution.

ANSWER: e
POINTS: 1

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REFERENCES: 1.2.70
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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38. Solve the equation.

$$(x + 5)^2 + 11 = (x + 6)^2$$

- a. $x = 5$
- b. $x = 6$
- c. $x = 11$
- d. $x = 0$
- e. No solution.

ANSWER: d
POINTS: 1
REFERENCES: 1.2.71
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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39. Solve the equation.

$$(x + 4)^2 + 16 = (x - 8)^2$$

- a. $x = \frac{17}{6}$
- b. $x = -\frac{4}{3}$
- c. $x = -\frac{8}{3}$
- d. $x = \frac{4}{3}$
- e. $x = -\frac{17}{6}$

ANSWER: d
POINTS: 1
REFERENCES: 1.2.72
QUESTION TYPE: Multi-Mode (Multiple choice)

Section 1.2 - Linear Equations in One Variable

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

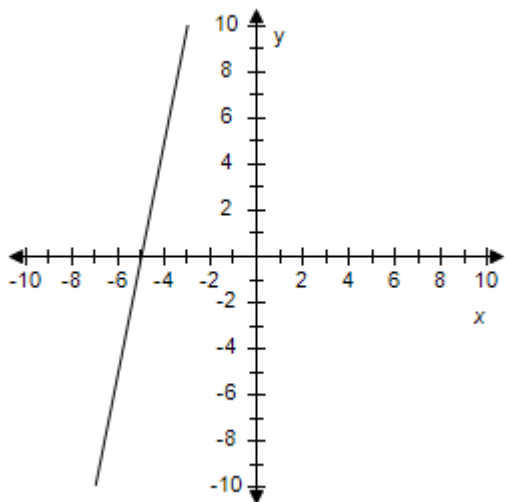
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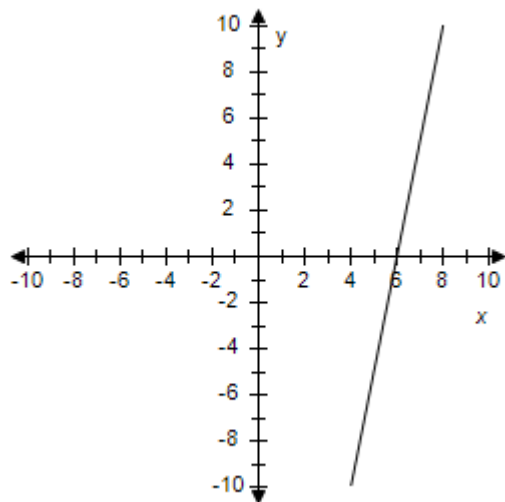
40. Use a graphing utility to graph the equation and approximate any x -intercepts.

$$y = 5(x - 1) - 25$$

a.

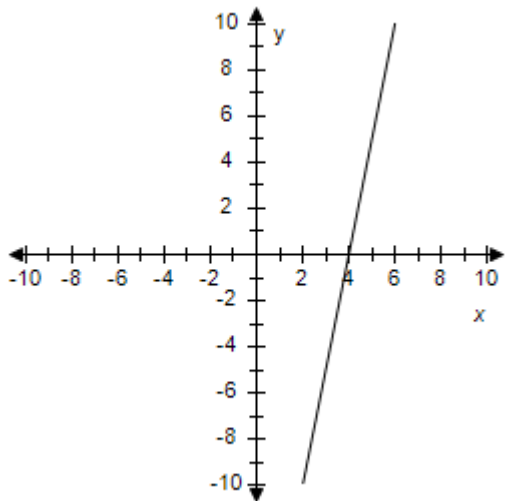


b.



$$x = -5$$

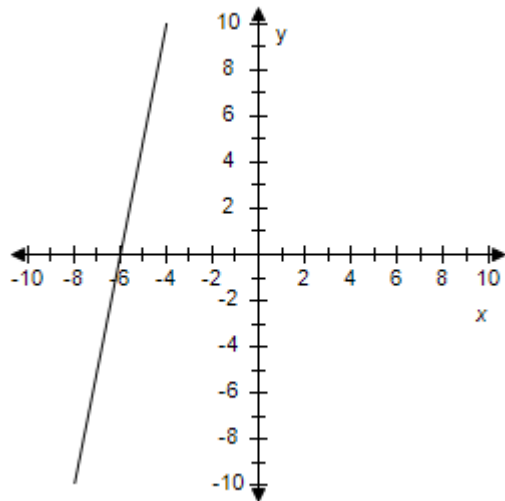
c.



$$x = 4$$

$$x = 6$$

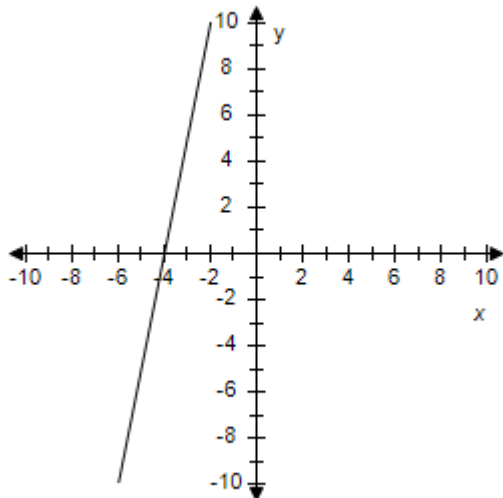
d.



$$x = -6$$

Section 1.2 - Linear Equations in One Variable

e.



$$x = -4$$

ANSWER:

b

POINTS:

1

REFERENCES:

1.2.75

QUESTION TYPE:

Multi-Mode (Multiple choice)

HAS VARIABLES:

True

STUDENT ENTRY MODE:

Basic

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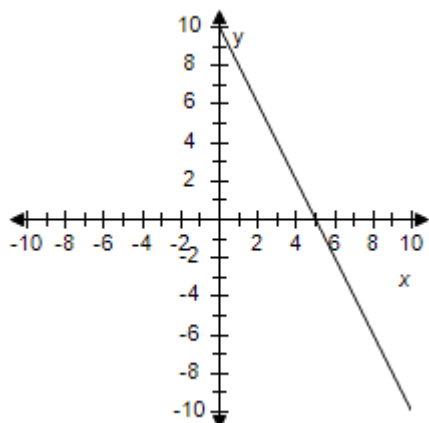
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41. Use a graphing utility to graph the equation and approximate any x-intercepts.

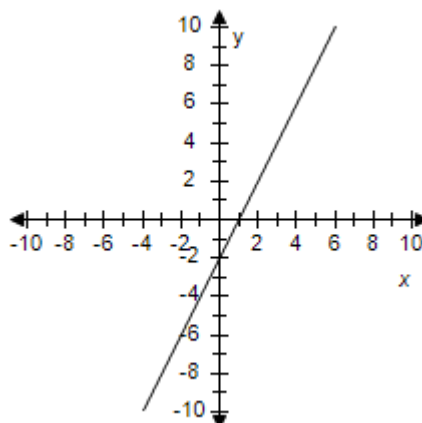
$$y = 4 - (2x - 6)$$

a.



$$x = 5$$

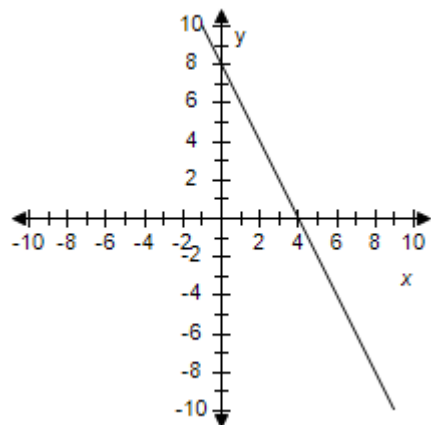
b.



$$x = 1$$

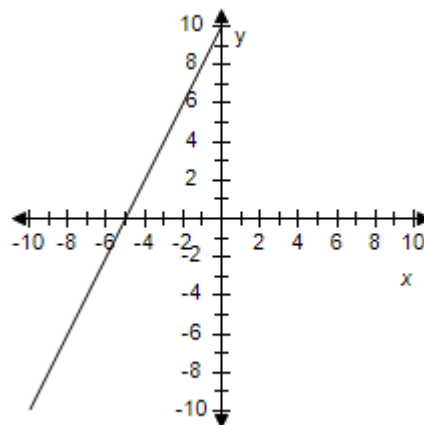
Section 1.2 - Linear Equations in One Variable

c.



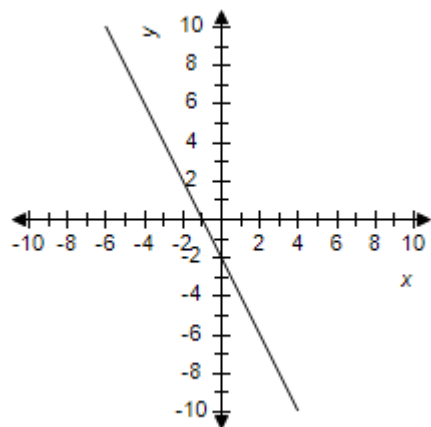
$$x = 4$$

d.



$$x = -5$$

e.



$$x = -1$$

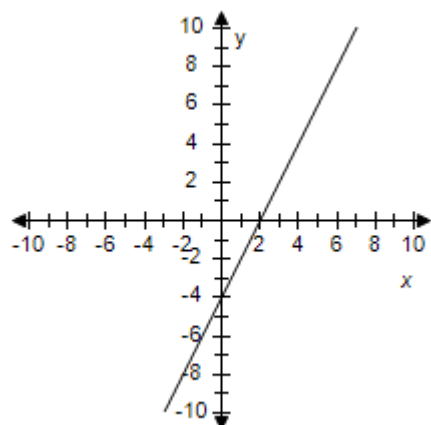
ANSWER: a
 POINTS: 1
 REFERENCES: 1.2.77
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
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42. Use a graphing utility to graph the equation and approximate any x-intercepts.

$$y = 10 + 2(x - 4)$$

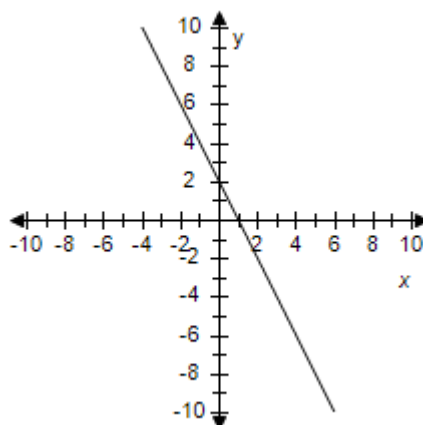
Section 1.2 - Linear Equations in One Variable

a.



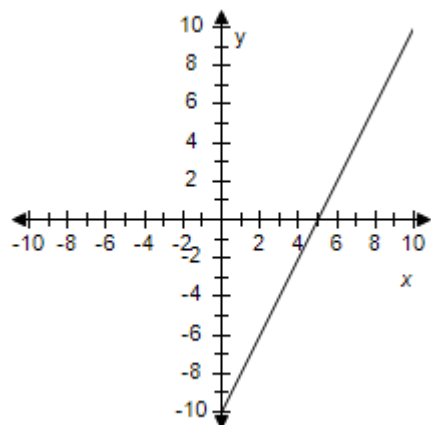
$$x = 2$$

b.



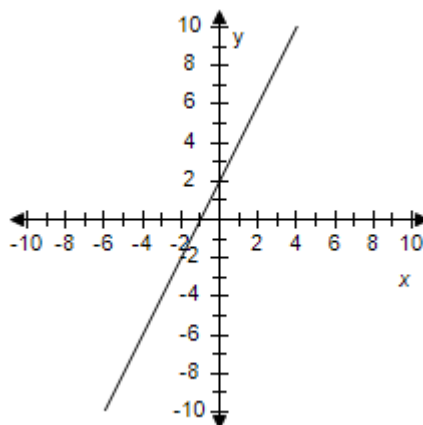
$$x = 1$$

c.



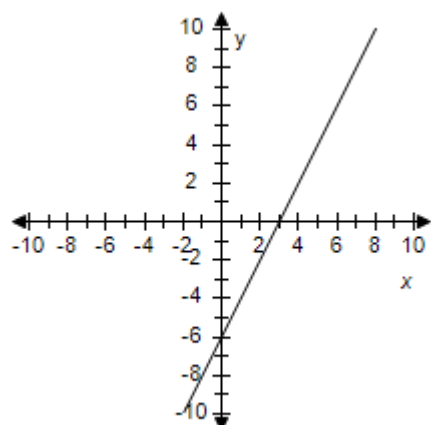
$$x = 5$$

d.



$$x = -1$$

e.



$$x = 3$$

ANSWER: d

POINTS: 1

REFERENCES: 1.2.78

QUESTION TYPE: Multi-Mode (Multiple choice)

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Section 1.2 - Linear Equations in One Variable

HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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43. Find the x - and y -intercepts of the graph of the equation algebraically.

$$y = 2 - (3 - x)$$

- a. x -intercept: (1, 0)
 y -intercept: (0, -3)
- b. x -intercept: (2, 0)
 y -intercept: (0, -3)
- c. x -intercept: (-2, 0)
 y -intercept: (0, -3)
- d. x -intercept: (2, 0)
 y -intercept: (0, -1)
- e. x -intercept: (1, 0)
 y -intercept: (0, -1)

ANSWER: e
POINTS: 1
REFERENCES: 1.2.84
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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44. A student states that the equation

$$-4(x + 6) = -4x + 24$$

is an identity. Describe and correct student's error.

- a. The negative sign was not distributed to the x .
- b. The negative sign was not distributed to the $4x$.
- c. The negative sign was not distributed to the 6.
- d. The negative sign was not distributed to the -4 .
- e. The negative sign was not distributed to the -24 .

ANSWER: c
POINTS: 1
REFERENCES: 1.2.92
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

Section 1.2 - Linear Equations in One Variable

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45. Solve the equation for x . (Round your answer to three decimal places.)

$$0.275x + 0.715(520 - x) = 270$$

- a. $x = 0.715$
- b. $x = 0.275$
- c. $x = 270$
- d. $x = 231.364$
- e. $x = 0.44$

ANSWER: d

POINTS: 1

REFERENCES: 1.2.93

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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46. Solve the equation for x . (Round your answer to three decimal places.)

$$\frac{2}{6.309} - \frac{2}{x} = 4$$

- a. $x = -0.543$
- b. $x = 12.618$
- c. $x = -12.618$
- d. $x = 0.543$
- e. $x = 23.236$

ANSWER: a

POINTS: 1

REFERENCES: 1.2.96

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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47. Solve the equation for x .

$$5(x + 1) - ax = x + 6$$

- a. $x = \frac{1}{4 - a}, a \neq -4$

Section 1.2 - Linear Equations in One Variable

b. $x = \frac{1}{4-a}, a \neq 4$

c. $x = \frac{1}{6-a}, a \neq 6$

d. $x = \frac{1}{4+a}, a \neq -4$

e. $x = \frac{1}{4+a}, a \neq 4$

ANSWER: b
POINTS: 1
REFERENCES: 1.2.97
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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48. Solve the equation for x .

$$6 + ax = 13 - bx$$

a. $x = \frac{7}{a-b}, a \neq -b$

b. $x = \frac{7}{a+b}, a \neq -b$

c. $x = \frac{19}{a-b}, a \neq -b$

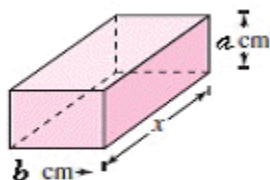
d. $x = \frac{7}{a+b}, a \neq b$

e. $x = \frac{19}{a+b}, a \neq -b$

ANSWER: b
POINTS: 1
REFERENCES: 1.2.100
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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49. If $a = 8$ and $b = 4$, then the surface area S of the rectangular solid in the figure is $S = 2(32) + 2(8x) + 2(4x)$. Find the length x of the box if the surface area is 232 square centimeters.

Section 1.2 - Linear Equations in One Variable



- a. $x = 7$ cm
- b. $x = 8$ cm
- c. $x = 6$ cm
- d. $x = 9$ cm
- e. $x = 5$ cm

ANSWER: a
 POINTS: 1
 REFERENCES: 1.2.106
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
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50. Complete the table and use it to find the interval in which the solution of the equation $3.4x - 5.8 = 0$ is located. Explain your reasoning.

	-1	0	1	2	3	4
$3.4x - 5.8$						

-1 0 1 2 3 4 $3.4x - 5.8$ -9.2 -5.8 -2.4 1 4.4 7.8

7.8

-1	0	1	2	3	4	
$3.4x - 5.8$	-9.2	-5.8	-2.4	1	4.4	7.8

a.

	-1	0	1	2	3	4
$3.4x - 5.8$	-9.2	-5.8	-2.4	1	4.4	7.8

$1 < x < 2$

The expression changes from negative to positive in this interval.

b.

	-1	0	1	2	3	4
$3.4x - 5.8$	9.2	5.8	2.4	1	4.4	7.8

Section 1.2 - Linear Equations in One Variable

$1 < x < 2$ The expression changes from negative to positive in this interval.

c.

	-1	0	1	2	3	4
$3.4x - 5.8$	9.2	-5.8	-2.4	1	4.4	7.8

$1 < x < 2$ The expression changes from negative to positive in this interval.

d.

	-1	0	1	2	3	4
$3.4x - 5.8$	-9.2	-5.8	2.4	1	4.4	7.8

$1 < x < 2$ The expression changes from negative to positive in this interval.

e.

	-1	0	1	2	3	4
$3.4x - 5.8$	-9.2	5.8	-2.4	1	4.4	7.8

$1 < x < 2$ The expression changes from negative to positive in this interval.

ANSWER: a
POINTS: 1
REFERENCES: 1.2.119
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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51. Determine which of the following values of x is a solution to the equation.

$$4 + \frac{1}{x+3} = 5$$

- a. $x = -2$
- b. $x = -\frac{1}{2}$
- c. $x = -3$
- d. $x = 4$
- e. $x = 2$

ANSWER: a
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 2.1.3a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.2 - Linear Equations in One Variable

52. Determine which of the following values of x is a solution to the equation.

$$x^2 - 8x + 15 = 0$$

- a. $x = -5$, $x = 3$
- b. $x = 5$
- c. $x = 5$, $x = 3$
- d. $x = 5$, $x = -3$
- e. $x = -3$

ANSWER: c
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 2.1.4c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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53. Which of the following equations is not a conditional equation?

- a. $6(x - 2) = 4x + 4$
- b. $6(x - 2) = 6x - 2$
- c. $x^2 + 4x - 12 = (x + 6)(x - 2) + 3$
- d. $x^2 + 12x + 36 = (x + 6)^2 + 4x$
- e. $x^2 + 6(-2x - 6) = x^2 - 12x - 36$

ANSWER: e
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 2.1.9
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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54. Which of the following equations is not an identity equation?

- a. $-8 + \frac{1}{x+1} = \frac{-8x-7}{x+1}$
- b. $-8(x+3) = -8x+3$

Section 1.2 - Linear Equations in One Variable

c. $-(-8-x) = x + 8$

d. $\frac{8}{x} + \frac{3}{x} = \frac{11x}{x^2}$

e. $x^2 - 8(3x + 8) = x^2 - 24x - 64$

ANSWER: b
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 2.1.11
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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55. Solve:

$$-5(x - 5) = 7(2 - x) - 2$$

a. $x = -\frac{17}{4}$

b. $x = -\frac{37}{12}$

c. $x = \frac{13}{4}$

d. $x = \frac{37}{2}$

e. $x = -\frac{13}{2}$

ANSWER: e
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 2.1.22
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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56. Solve:

$$\frac{x}{9} - \frac{x}{3} = 7 + \frac{7x}{27}$$

Section 1.2 - Linear Equations in One Variable

a. $x = -\frac{189}{13}$

b. $x = -\frac{9}{2}$

c. $x = -27$

d. $x = -\frac{2}{9}$

e. $x = \frac{189}{5}$

ANSWER: a
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 2.1.29
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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57. Solve:

$$\frac{4}{3x+1} - \frac{18x}{3x-1} = -6$$

a. $x = -\frac{5}{3}$

b. $x = -\frac{1}{3}$

c. $x = -\frac{1}{5}$

d. $x = \frac{1}{3}$

e. $x = -\frac{5}{7}$

ANSWER: a
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 2.1.35
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True

Section 1.2 - Linear Equations in One Variable

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58. Solve:

$$\frac{1}{x+6} + \frac{2}{x+7} = \frac{3}{x^2+13x+42}$$

a. $x = -\frac{10}{3}$

b. $x = \frac{13}{3}$

c. $x = \frac{2}{3}$

d. $x = -\frac{16}{3}$

e. $x = -\frac{4}{3}$

ANSWER: d

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 2.1.39

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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59. Solve for x:

$$\frac{14}{3}x - ax = 7\left(\frac{2}{3}x - 1\right) + b$$

a. $x = \frac{7-a}{b}$

b. $x = \frac{b-7}{a}$

c. $x = \frac{7-b}{a}$

d. $x = \frac{a-b}{7}$

Section 1.2 - Linear Equations in One Variable

e. $x = \frac{b-a}{7}$

ANSWER: c
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 2.1.45
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.3 - Modeling with Linear Equations

1. Select a verbal description of the algebraic expression without using the variable.

$$x + 5$$

- a. A number divided by 5
- b. A number decreased by 5
- c. A number increased by 5
- d. A number multiply by 5
- e. None of the above

ANSWER: c

POINTS: 1

REFERENCES: 1.3.9

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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2. Select a verbal description of the algebraic expression without using the variable.

$$t - 5$$

- a. A number increased by 5
- b. A number decreased by 5
- c. A number divided by 5
- d. A number multiply by 5
- e. None of the above

ANSWER: b

POINTS: 1

REFERENCES: 1.3.10

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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3. Select a verbal description of the algebraic expression without using the variable.

$$\frac{u}{6}$$

- a. A number multiply by 6
- b. A number divided by 6
- c. A number decreased by 6
- d. A number increased by 6
- e. None of the above

Section 1.3 - Modeling with Linear Equations

ANSWER: b
POINTS: 1
REFERENCES: 1.3.11
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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4. Select a verbal description of the algebraic expression without using the variable.

$$\frac{y-2}{7}$$

- a. A number increased by 7 is divided by 2.
- b. A number divided by 7 is increased by 7.
- c. A number decreased by 7 is divided by 2.
- d. A number increased by 2 is divided by 7.
- e. A number decreased by 2 is divided by 7.

ANSWER: e
POINTS: 1
REFERENCES: 1.3.13
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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5. Select a verbal description of the algebraic expression without using the variable.

$$-9(b+5)$$

- a. Positive 5 is multiplied by a number increased by 9.
- b. Positive 9 is multiplied by a number increased by 5.
- c. Positive 5 is multiplied by a number decreased by 9.
- d. Negative 9 is multiplied by a number increased by 5.
- e. Negative 5 is multiplied by a number decreased by 9.

ANSWER: d
POINTS: 1
REFERENCES: 1.3.15
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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6. Select a verbal description of the algebraic expression without using the variable.

$$\frac{6(p-5)}{p}$$

p

- a. 5 is multiplied by a number decreased by 6 and the product is divided by that number.
- b. A number increased by 5 and divided by that number.
- c. 5 is multiplied by a number increased by 6 and the product is divided by that number.
- d. 6 is multiplied by a number decreased by 5 and the product is divided by that number.
- e. 6 is multiplied by a number increased by 5 and the product is divided by that number.

ANSWER: d

POINTS: 1

REFERENCES: 1.3.17

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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7. Select a verbal description of the algebraic expression without using the variable.

$$14x(x-4)$$

- a. 4 is multiplied by a number and that product is multiplied by the number increased by 14.
- b. 14 is multiplied by a number and that product is multiplied by the number decreased by 4.
- c. 4 is multiplied by a number and that product is multiplied by the number decreased by 14.
- d. 14 is multiplied by a number and that product is multiplied by the number increased by 4.
- e. None of the above

ANSWER: b

POINTS: 1

REFERENCES: 1.3.16

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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8. Select a verbal description of the algebraic expression without using the variable.

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$$\frac{z + 16}{5}$$

- a. A number decreased by 5 is divided by 16.
- b. A number decreased by 16 is divided by 5.
- c. A number increased by 5 is divided by 16.
- d. A number increased by 16 is divided by 5.
- e. None of the above

ANSWER: d
POINTS: 1
REFERENCES: 1.3.14
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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9. Solve the following percent equation.

What is 150% of 360?

- a. 539
- b. 541
- c. 542
- d. 540
- e. 538

ANSWER: d
POINTS: 1
REFERENCES: 1.3.44
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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10. Select an algebraic expression for the verbal description.

The distance traveled in t hours by a car traveling at 52 miles per hour.

- a. $52t$
- b. $\frac{t}{52}$
- c. t
- d. 52

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e. $\frac{52}{t}$

ANSWER: a
POINTS: 1
REFERENCES: 1.3.23
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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11. Select an algebraic expression for the verbal description.

The travel time for a plane traveling at a rate of r kilometers per hour for 600 kilometers.

- a. $600 - r$
- b. $600r$
- c. $\frac{600}{r}$
- d. $\frac{r}{600}$
- e. $600 + r$

ANSWER: c
POINTS: 1
REFERENCES: 1.3.24
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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12. Select an algebraic expression for the verbal description.

The amount of acid in x liters of a 40% acid solution.

- a. $\frac{40}{x}$
- b. $40x$
- c. $0.40x$
- d. $\frac{0.40}{x}$
- e. $\frac{x}{0.40}$

ANSWER: c
POINTS: 1

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REFERENCES: 1.3.25
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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13. Select an algebraic expression for the verbal description.

The perimeter of a rectangle with a width x and a length that is two times the width.

- a. $2x$
- b. $4x$
- c. $6x$
- d. $7x$
- e. $11x$

ANSWER: c
POINTS: 1
REFERENCES: 1.3.27
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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14. Select an algebraic expression for the verbal description.

The area of a triangle with base 16 inches and height h inches.

- a. $9h$
- b. $32h$
- c. $8h$
- d. $64h$
- e. $16h$

ANSWER: c
POINTS: 1
REFERENCES: 1.3.28
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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15. Select an algebraic expression for the verbal description.

The total cost of producing x units for which the fixed costs are \$2,400 and the cost per unit is \$10.

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- a. $2,400 + 10x$
- b. $10x + 2,400x$
- c. $10 + 2,400x$
- d. $2,400 - 10x$
- e. $10x - 2,400x$

ANSWER: a
POINTS: 1
REFERENCES: 1.3.29
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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16. Translate the following statement into an algebraic expression or equation.

Twenty percent of the list price L .

- a. $\frac{L}{20}$
- b. $0.2 L$
- c. $\frac{20}{L}$
- d. $\frac{0.2}{L}$
- e. 0.2

ANSWER: b
POINTS: 1
REFERENCES: 1.3.31
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:15 PM
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17. Translate the following statement into an algebraic expression or equation.

The percent function p of 674 that is represented by the number N .

- a. $N = p(674)$
- b. $N = 674$
- c. $p = N(674)$

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d. $N = \frac{P}{(674)}$

e. None of the above

ANSWER: a
POINTS: 1
REFERENCES: 1.3.33
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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18. Select a mathematical model for the following problem and solve.

The sum of two consecutive natural numbers is 527. Find the numbers.

- a. 267, 268
- b. 265, 266
- c. 269, 270
- d. 263, 264
- e. 271, 272

ANSWER: d
POINTS: 1
REFERENCES: 1.3.37
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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19. Select a mathematical model for the following problem and solve.

One positive number is 7 times another number. The difference between the two numbers is 156. Find the numbers.

- a. 49, 107
- b. 26, 182
- c. 20, 176
- d. 50, 106
- e. 30, 126

ANSWER: b
POINTS: 1
REFERENCES: 1.3.39
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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20. Solve the following percent equation.

What is 40% of 49?

- a. 20.6
- b. 19.6
- c. 17.6
- d. 18.6
- e. 21.6

ANSWER: b

POINTS: 1

REFERENCES: 1.3.43

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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21. Solve the following percent equation.

460 is what percent of 2,000? (Round the answer to unit digit if necessary.)

- a. 23%
- b. 24%
- c. 21%
- d. 25%
- e. 22%

ANSWER: a

POINTS: 1

REFERENCES: 1.3.45

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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22. Solve the following percent equation.

14 is $\frac{1}{4}$ % of what number?

- a. 5,700

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- b. 5,400
- c. 5,600
- d. 5,500
- e. 5,800

ANSWER: c
POINTS: 1
REFERENCES: 1.3.47
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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23. The price of a swimming pool has been discounted 12.5%. The sale price is \$1,270.75. Find the original list price of the pool. (Round the answer to the nearest cent.)

- a. \$1,454.29
- b. \$1,455.29
- c. \$1,449.29
- d. \$1,452.29
- e. \$1,457.29

ANSWER: d
POINTS: 1
REFERENCES: 1.3.50
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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24. A family has annual loan payments equaling 40% of their annual income. During the year, their loan payments total \$13,125.50. What is their annual income? (Round the answer to the nearest cent.)

- a. \$32,913.75
- b. \$32,713.75
- c. \$33,013.75
- d. \$32,813.75
- e. \$32,613.75

ANSWER: d
POINTS: 1
REFERENCES: 1.3.51
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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25. The price of an item is given for 2000 and 2007. Find the percent change for the item. (Round the answer to one decimal place.)

<i>Item</i>	2000	2007
Gallon of regular unleaded Gasoline	\$1.57	\$2.3

- a. 46.5% decrease
- b. 46.5% increase
- c. 45.5% increase
- d. 47.5% decrease
- e. 48.5% increase

ANSWER: b

POINTS: 1

REFERENCES: 1.3.53

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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26. The price of an item is given for 2000 and 2007. Find the percent change for the item. (Round the answer to one decimal place.)

<i>Item</i>	2000	2007
Pound of 100% ground beef	\$1.61	\$2.25

- a. 38.8% decrease
- b. 40.8% increase
- c. 39.8% decrease
- d. 41.8% increase
- e. 39.8% increase

ANSWER: e

POINTS: 1

REFERENCES: 1.3.55

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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27. The price of item is given for 2000 and 2007. Find the percent change for the item. (Round the answer to one decimal place.)

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<i>Item</i>	2000	2007
Monthly bill for cellular phone service	\$43.27	\$49.79

- a. 17.1% decrease
- b. 15.1% decrease
- c. 16.1% increase
- d. 15.1% increase
- e. 14.1% increase

ANSWER: d
POINTS: 1
REFERENCES: 1.3.56
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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28. A room is 2.5 times as long as it is wide, and its perimeter is 15 meters. Write the length l in terms of the width w and write an equation for the perimeter in terms of w .

- a. $l = 7w$; $p = 2.5w$
- b. $l = 9w$; $p = 7w$
- c. $l = 7w$; $p = 1.7w$
- d. $l = \frac{w}{2.5}$; $p = \frac{w}{7}$
- e. $l = 2.5w$; $p = 7w$

ANSWER: e
POINTS: 1
REFERENCES: 1.3.57
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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29. To get an A in a course, you must have an average of at least 70 on four tests of 100 points each. The scores on your first three tests were 89, 92, and 84. What must you score on the fourth test to get an A for the course? Find the minimum possible value.

- a. 14
- b. 16
- c. 17
- d. 13
- e. 15

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ANSWER: e
POINTS: 1
REFERENCES: 1.3.59
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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30. You are taking a course that has four tests. The first three tests are 100 points each and the fourth test is 200 points. To get an A in the course, you must have an average of at least 90% on the four tests. Your scores on the first three tests were 88, 92, and 82. What must you score on the fourth test to get an A for the course? Find the minimum possible value.

- a. 187
- b. 188
- c. 190
- d. 186
- e. 189

ANSWER: b
POINTS: 1
REFERENCES: 1.3.60
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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31. Students are traveling in two cars to a football game 131 miles away. The first car leaves on time and travels at an average speed of 43 miles per hour. The second car starts $\frac{1}{2}$ hour later and travels at an average speed of 52 miles per hour. How long will it take the second car to catch up to the first car? Round the answer to two decimal places.

- a. 0.35 hours after the first car leaves.
- b. 3.89 hours after the first car leaves.
- c. 2.89 hours after the first car leaves.
- d. 4.89 hours after the first car leaves.
- e. 6.89 hours after the first car leaves.

ANSWER: c
POINTS: 1
REFERENCES: 1.3.62
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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32. A truck driver traveled at an average speed of 45 miles per hour on a 100-mile trip to pick up a load of freight. On the return trip (with the truck fully loaded), the average speed was 40 miles per hour. What was the average speed for the round trip? Round the answer to one decimal place.

- a. About 43.4 mi/h
- b. About 40.4 mi/h
- c. About 44.4 mi/h
- d. About 42.4 mi/h
- e. About 41.4 mi/h

ANSWER: d

POINTS: 1

REFERENCES: 1.3.63

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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33. An executive flew in the corporate jet to a meeting in a city 1,200 kilometers away. After traveling the same amount of time on the return flight, the pilot mentioned that they still had 500 kilometers to go. The air speed of the plane was 600 kilometers per hour. How fast was the wind blowing? (Assume that the wind direction was parallel to the flight path and constant all day.)

- a. $\frac{7}{3000}$ km/h
- b. $2\frac{5}{7}$ km/h
- c. $157\frac{17}{19}$ km/h
- d. $428\frac{4}{7}$ km/h
- e. $\frac{19}{3000}$ km/h

ANSWER: c

POINTS: 1

REFERENCES: 1.3.64

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

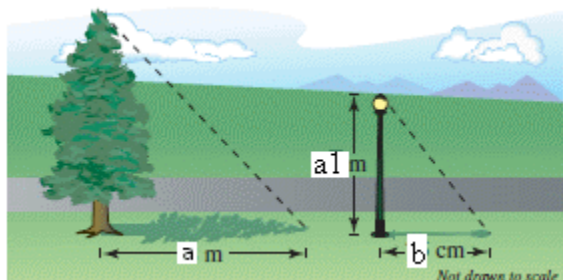
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34. To obtain the height of a tree (see figure), you measure the tree's shadow and find that it is 2 meters long. You also measure the shadow of a five-meter lamppost and find that it is 73 centimeters long. How tall is the tree?



- a. $\frac{73}{1000}$ m
- b. $\frac{2}{73}$ m
- c. $\frac{73}{500}$ m
- d. $13\frac{51}{73}$ m
- e. $6\frac{62}{73}$ m

ANSWER: d
POINTS: 1
REFERENCES: 1.3.68
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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35. A nursery has \$50,000 of inventory in dogwood trees and red maple trees. The profit on a dogwood tree is 23% and the profit on a red maple tree is 10%. The profit for the entire stock is 17%. How much was invested in each type of tree?

- a. Red maple: \$23,277; Dogwood: \$26,923
- b. Red maple: \$23,077; Dogwood: \$27,123
- c. Red maple: \$23,077; Dogwood: \$26,923
- d. Red maple: \$23,077; Dogwood: \$23,277
- e. Red maple: \$27,123; Dogwood: \$26,923

ANSWER: c
POINTS: 1
REFERENCES: 1.3.73
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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36. Solve the following percent equation.

476 is what percent of 350?

- a. 136%
- b. 135%
- c. 137%
- d. 134%
- e. 138%

ANSWER: a

POINTS: 1

REFERENCES: 1.3.46

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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37. A 100% concentrate is to be mixed with a mixture having a concentration of 42% to obtain 54 gallons of a mixture with a concentration of 75%. How much of the 100% concentrate will be needed?

- a. About 29.7 gal
- b. About 32.7 gal
- c. About 28.7 gal
- d. About 31.7 gal
- e. About 30.7 gal

ANSWER: e

POINTS: 1

REFERENCES: 1.3.76

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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38. A forester mixes gasoline and oil to make 2 gallons of mixture for his two-cycle chainsaw engine. This mixture is 31 parts gasoline and 1 part two-cycle oil. How much gasoline must be added to bring the mixture to 45 parts gasoline and 1 part oil?

- a. About 1.08 gal
- b. About 0.88 gal
- c. About 1.18 gal

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d. About 0.98 gal

e. About 1.28 gal

ANSWER: b

POINTS: 1

REFERENCES: 1.3.77

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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39. A grocer mixes peanuts that cost \$4.49 per pound and walnuts that cost \$5.69 per pound to make 100 pounds of a mixture that costs \$5.21 per pound. How much of each kind of nut is put into the mixture?

a. 40 lb of peanuts, 40 lb of walnuts

b. 60 lb of peanuts, 60 lb of walnuts

c. 50 lb of peanuts, 60 lb of walnuts

d. 40 lb of peanuts, 60 lb of walnuts

e. 60 lb of peanuts, 40 lb of walnuts

ANSWER: d

POINTS: 1

REFERENCES: 1.3.78

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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40. An outdoor furniture manufacturer has fixed costs of \$10,000 per month and average variable costs of \$16.75 per unit manufactured. The company has \$170,000 available to cover the monthly costs. How many units can the company manufacture? (*Fixed costs* are those that occur regardless of the level of production. *Variable costs* depend on the level of production.) (Round the answer to unit digit.)

a. 9,562 units

b. 9,572 units

c. 9,542 units

d. 9,552 units

e. 9,532 units

ANSWER: d

POINTS: 1

REFERENCES: 1.3.79

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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41. A plumbing supply company has fixed costs of \$30,000 per month and average variable costs of \$9.5 per unit manufactured. The company has \$60,000 available to cover the monthly costs. How many units can the company manufacture? (*Fixed costs* are those that occur regardless of the level of production. *Variable costs* depend on the level of production.) (Round the answer to unit digit.)

- a. 3,178 units
- b. 3,188 units
- c. 3,158 units
- d. 3,168 units
- e. 3,198 units

ANSWER: c

POINTS: 1

REFERENCES: 1.3.80

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

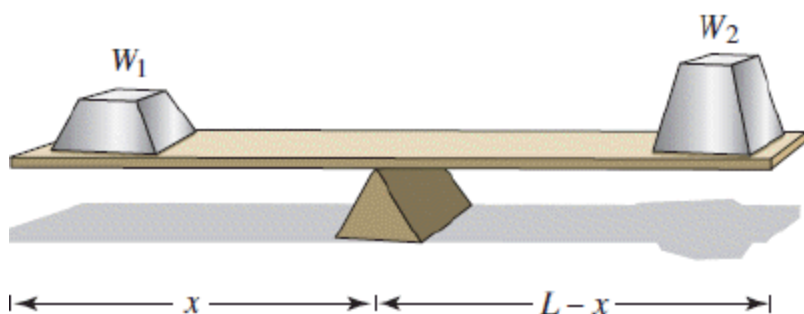
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42. You have a uniform beam of length L with a fulcrum x feet from one end (see figure).

Objects with weights W_1 and W_2 are placed at opposite ends of the beam. The beam will balance when $W_1x = W_2(L - x)$. Find x such that the beam will balance.



Two children weighing $W_1 = 28$ pounds and $W_2 = 56$ pounds are playing on a seesaw that is 30 feet long. (Round the answer to unit digit.)

- a. $x = 22$ feet from the 28 pounds child
- b. $x = 23$ feet from the 28 pounds child
- c. $x = 21$ feet from the 56 pounds child
- d. $x = 20$ feet from the 28 pounds child
- e. $x = 19$ feet from the 28 pounds child

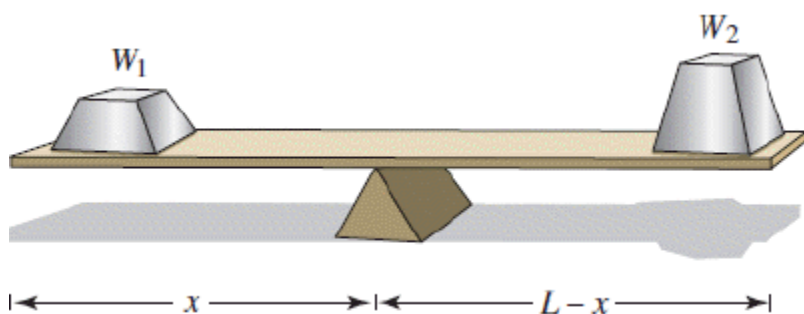
ANSWER: d

POINTS: 1

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REFERENCES: 1.3.93
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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43. You have a uniform beam of length L with a fulcrum x feet from one end (see figure). Objects with weights W_1 and W_2 are placed at opposite ends of the beam. The beam will balance when $W_1x = W_2(L - x)$. Find x such that the beam will balance.



A person weighing $W_1 = 210$ pounds is attempting to move a rock weighing $W_2 = 740$ pounds with a bar that is 6 feet long.

- a. $x = \frac{21}{95}$ feet from the person
- b. $x = 4\frac{64}{95}$ feet from the person
- c. $x = \frac{1}{950}$ feet from the person
- d. $x = \frac{74}{95}$ feet from the person
- e. $x = 740$ feet from the person

ANSWER: b
POINTS: 1
REFERENCES: 1.3.94
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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44. A billiard ball has a volume of 5.95 cubic inches. Find the radius of a billiard ball.

a. $\sqrt{\frac{4.46}{\pi}} \approx 1.19$ in

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b. $\sqrt[3]{\frac{\pi}{4.46}} \approx 0.70 \text{ in}$

c. $\sqrt[3]{\frac{\pi}{4.46}} \approx 1.12 \text{ in}$

d. $\sqrt[3]{\frac{4.46}{\pi}} \approx 1.19 \text{ in}$

e. $\sqrt[3]{\frac{4.46}{\pi}} \approx 1.12 \text{ in}$

ANSWER: e
POINTS: 1
REFERENCES: 1.3.95
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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45. The diameter of a cylindrical propane gas tank is 8 feet. The total volume of the tank is 603.6 cubic feet. Find the length of the tank. (Round the answer to tens digit.)

a. $\frac{16\pi}{603.6} \approx 0.08 \text{ ft}$

b. $\frac{603.6}{16\pi} \approx 12 \text{ ft}$

c. $\frac{603.6}{4\pi} \approx 48 \text{ ft}$

d. $\frac{16\pi}{603.6} \approx 12 \text{ ft}$

e. $\frac{603.6}{16\pi} \approx 0.08 \text{ ft}$

ANSWER: b
POINTS: 1
REFERENCES: 1.3.96
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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46. The average daily temperature in San Diego, California is 62.1°F. What is San Diego's average daily temperature in degrees Celsius? (Round the answer to unit digit.)

$$t_C = \frac{5}{9}(t_F - 32)$$

- a. 19°C
- b. 17°C
- c. 18°C
- d. 16°C
- e. 15°C

ANSWER: b

POINTS: 1

REFERENCES: 1.3.97

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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47. The average daily temperature in Duluth, Minnesota is 38.1°F. What is Duluth's average daily temperature in degrees Celsius? (Round the answer to unit digit.)

$$t_C = \frac{5}{9}(t_F - 32)$$

- a. 7°C
- b. 4°C
- c. 6°C
- d. 5°C
- e. 3°C

ANSWER: e

POINTS: 1

REFERENCES: 1.3.98

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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48. Solve the following percent equation.

66 is 40% of what number?

- a. 240

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- b. 190
- c. 215
- d. 265
- e. 165

ANSWER: e
POINTS: 1
REFERENCES: 1.3.48
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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49. Translate the following statement into an algebraic expression or equation.

The amount of water in q quarts of a liquid that is 31% water.

- a. $31q$
- b. $0.31 + q$
- c. $\frac{0.31}{q}$
- d. $0.31 - q$
- e. $0.31q$

ANSWER: e
POINTS: 1
REFERENCES: 1.3.32
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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50. Determine whether the statement is true or false. Justify your answer.

"4 less than z cubed divided by the difference of z squared and 7" can be written as $\frac{(z^3 - 4)}{(z - 7)^2}$.

- a. False. The expression should be $\frac{z^3 - 4}{z^2 - 7}$.
- b. True. The expression should be $\frac{z^3 - 4}{(z - 7)^2}$.

ANSWER: a
POINTS: 1
REFERENCES: 1.3.101

Section 1.3 - Modeling with Linear Equations

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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Section 1.4 - Quadratic Equations and Applications

1. Write the following quadratic equation in general form.

$$-8x^2 = 15 + 3x$$

- a. $-8x^2 - 3x = 15$
- b. $8x^2 + 3x + 15 = 0$
- c. $3x - 8x^2 + 15 = 0$
- d. $15 - 8x^2 + 3x = 0$
- e. $-8x^2 + 15 + 3x = 0$

ANSWER: b
POINTS: 1
REFERENCES: 1.4.7
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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2. Write the quadratic equation in general form.

$$4x^2 = 8 - 8x$$

- a. $4x^2 + 8x = -8$
- b. $4x^2 - 8x - 8 = 0$
- c. $4x^2 + 8x + 8 = 0$
- d. $-4x^2 + 8x - 8 = 0$
- e. $4x^2 + 8x - 8 = 0$

ANSWER: e
POINTS: 1
REFERENCES: 1.4.7
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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3. Write the quadratic equation in general form.

$$3x^2 = 26x$$

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a. $3x^2 - 26 = 0$

b. $3x^2 + 26 = 0$

c. $3x^2 - 26x = 0$

d. $3x^2 + 26x = 0$

e. $-3x^2 - 26x = 0$

ANSWER:

c

POINTS:

1

REFERENCES:

1.4.8

QUESTION TYPE:

Multi-Mode (Multiple choice)

HAS VARIABLES:

True

STUDENT ENTRY MODE:

Basic

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4. Write the following quadratic equation in general form.

$$5(x^2 - 10) = -9x$$

a. $5x^2 - 50 + 9x = 0$

b. $5(x^2 - 10) + 9x = 0$

c. $5x^2 - 50 = -9x$

d. $5x^2 + 9x = 50$

e. $5x^2 + 9x - 50 = 0$

ANSWER:

e

POINTS:

1

REFERENCES:

1.4.9

QUESTION TYPE:

Multi-Mode (Multiple choice)

HAS VARIABLES:

True

STUDENT ENTRY MODE:

Basic

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5. Write the quadratic equation in general form.

$$(x - 3)^2 = 3$$

a. $x^2 - 6x - 6 = 0$

b. $x^2 - 6x + 6 = 0$

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c. $x^2 - 6x = -3$

d. $x^2 - 6x + 9 = 0$

e. $x^2 + 6x + 6 = 0$

ANSWER: b
POINTS: 1
REFERENCES: 1.4.9
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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6. Write the following quadratic equation in general form.

$$x(x + 7) = x - 10$$

a. $x^2 + 6x - 10 = 0$

b. $x^2 + 6x + 10 = 0$

c. $x^2 - 6x + 10 = 0$

d. $x^2 + 6x = -10$

e. $x^2 + 7x = -10$

ANSWER: b
POINTS: 1
REFERENCES: 1.4.12
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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7. Write the quadratic equation in general form.

$$x(x + 2) = 3x^2 + 6$$

a. $2x^2 - 2x - 6 = 0$

b. $-2x^2 - 2x + 6 = 0$

c. $2x^2 + 2x + 6 = 0$

d. $2x^2 + 2x - 6 = 0$

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e. $2x^2 - 2x + 6 = 0$

ANSWER: e
POINTS: 1
REFERENCES: 1.4.12
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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8. Solve the quadratic equation by factoring.

$28x^2 + 7x = 0$

- a. 0, 4
- b. $1, -\frac{1}{4}$
- c. $0, -4$
- d. $0, \frac{1}{4}$
- e. $0, -\frac{1}{4}$

ANSWER: e
POINTS: 1
REFERENCES: 1.4.13
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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9. Solve the quadratic equation by factoring.

$16x^2 - 1 = 0$

- a. $0, -\frac{1}{4}$
- b. $\frac{1}{4}, \frac{1}{4}$
- c. $0, \frac{1}{4}$

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d. $1, -\frac{1}{4}$

e. $-\frac{1}{4}, \frac{1}{4}$

ANSWER: e
POINTS: 1
REFERENCES: 1.4.14
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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10. Solve the quadratic equation by factoring.

$$x^2 - 10x + 21 = 0$$

- a. -3, 7
- b. 10, 7
- c. 3, 7
- d. -3, -7
- e. 3, -7

ANSWER: c
POINTS: 1
REFERENCES: 1.4.16
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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11. Solve the quadratic equation by factoring.

$$x^2 + 10x + 25 = 0$$

- a. ± 5
- b. 5
- c. -5
- d. $\frac{1}{5}$
- e. $-\frac{1}{5}$

ANSWER: c

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POINTS: 1
REFERENCES: 1.4.17
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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12. Solve the following quadratic equation by factoring.

$$-5x^2 - 24x + 36 = 0$$

a. $x = -5, x = -6$

b. $x = \frac{6}{5}, x = 6$

c. $x = -\frac{6}{5}, x = -6$

d. $x = -\frac{6}{5}, x = 6$

e. $x = \frac{6}{5}, x = -6$

ANSWER: e

POINTS: 1

REFERENCES: 1.4.18

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

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13. Solve the quadratic equation by factoring.

$$x^2 + 4x = 21$$

a. 3, 7

b. -3, -7

c. 3, -7

d. -3, 7

e. 1, -7

ANSWER: c

POINTS: 1

REFERENCES: 1.4.21

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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14. Solve the quadratic equation by factoring.

$$-x^2 + 8x = 12$$

- a. -2, 6
- b. 8, 12
- c. -2, -6
- d. 2, -6
- e. 2, 6

ANSWER: e

POINTS: 1

REFERENCES: 1.4.22

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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15. Solve the quadratic equation by factoring.

$$\frac{1}{7}x^2 - x - 14 = 0$$

- a. -7, -14
- b. 7, -14
- c. 7, 14
- d. -7, 14
- e. -7, 7

ANSWER: d

POINTS: 1

REFERENCES: 1.4.24

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

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16. Solve the equation by extracting square roots.

$$x^2 = 64$$

- a. $\pm \frac{1}{8}$

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- b. -8
- c. ± 8
- d. $\pm 8x$
- e. 8

ANSWER: c
POINTS: 1
REFERENCES: 1.4.25
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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17. Solve the equation by extracting square roots.

$$x^2 = 17$$

- a. $\pm\sqrt{17}x^2$
- b. $\pm\sqrt{17}$
- c. 17
- d. $\pm\frac{\sqrt{17}}{x}$
- e. $\pm\sqrt{17}x$

ANSWER: b
POINTS: 1
REFERENCES: 1.4.27
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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18. Solve the equation by extracting square roots.

$$x^2 = 490$$

- a. $7\sqrt{10}x$
- b. $\pm 7\sqrt{10}$
- c. $\sqrt{5}$
- d. $\sqrt{7}$
- e. $7\sqrt{10}$

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ANSWER: b
POINTS: 1
REFERENCES: 1.4.28
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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19. Solve the equation by extracting square roots.

$$9x^2 = 100$$

- a. $x = \frac{100}{3}, x = -\frac{100}{3}$
- b. $x = \frac{100}{9}$
- c. $x = \frac{10}{9}, x = -\frac{10}{9}$
- d. $x = \frac{10}{3}$
- e. $x = \frac{10}{3}, x = -\frac{10}{3}$

ANSWER: e
POINTS: 1
REFERENCES: 1.4.29
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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20. Solve the equation by extracting square roots.

$$4x^2 = 108$$

- a. $\pm\sqrt{3}$
- b. $3\sqrt{3}$
- c. $\pm 3\sqrt{3}x$
- d. $\pm\sqrt{3}x$
- e. $\pm 3\sqrt{3}$

ANSWER: e
POINTS: 1
REFERENCES: 1.4.29
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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21. Solve the equation by extracting square roots.

$$4x^2 = 144$$

- a. $\pm\sqrt{6}$
- b. ± 6
- c. $\pm\sqrt{6}x$
- d. $\pm 6x$
- e. 6

ANSWER: b

POINTS: 1

REFERENCES: 1.4.30

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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22. Solve the equation by extracting square roots.

$$(x + 6)^2 = 3$$

- a. $6 + \sqrt{3}$
- b. $-6 + \sqrt{3}$
- c. $-6 - \sqrt{3}$
- d. $6 \pm \sqrt{3}$
- e. $-6 \pm \sqrt{3}$

ANSWER: e

POINTS: 1

REFERENCES: 1.4.33

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

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23. Solve the equation $(4x + 3)^2 = 19$ by extracting square roots.

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a. $x = \frac{-3 + \sqrt{19}}{4}, \frac{-3 - \sqrt{19}}{4}$

b. $x = 4, -\frac{11}{2}$

c. $x = \frac{3 + \sqrt{19}}{4}, \frac{3 - \sqrt{19}}{4}$

d. $x = \frac{-3 + \sqrt{19}}{4}$

e. $x = 4$

ANSWER: a

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

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24. Solve the equation by extracting square roots.

$$(x + 3)^2 = 512$$

a. $3 \pm 16\sqrt{2}$

b. $-3 \pm 16\sqrt{2}$

c. $-3 \pm 16\sqrt{2}$

d. $-3 \pm \sqrt{8}$

e. $-3 - 16\sqrt{2}$

ANSWER: c

POINTS: 1

REFERENCES: 1.4.34

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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25. Solve the equation by extracting square roots.

$$(x - 11)^2 = (x + 3)^2$$

a. 2

b. -4

c. -2

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d. $4x$

e. 4

ANSWER: e

POINTS: 1

REFERENCES: 1.4.37

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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26. Solve the equation by extracting square roots.

$$(x+6)^2 = (x+3)^2$$

a. $x = 1$

b. $x = -\frac{3}{2}$

c. $x = -\frac{9}{2}$

d. $x = -\frac{3}{2}, \frac{9}{2}$

e. No solution

ANSWER: c

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

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27. Solve the quadratic equation by completing the square.

$$x^2 + 3x - 18 = 0$$

a. -6, -3

b. 6, 3

c. -6, 3

d. 6, 3

e. 18, -3

ANSWER: c

POINTS: 1

REFERENCES: 1.4.39

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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28. Solve the following quadratic equation by completing the square.

$$x^2 - 20x + 36 = 0$$

- a. $x = -2, x = -2$
- b. $x = -2, x = 2$
- c. $x = 2$
- d. $x = 8, x = -8$
- e. $x = 2, x = 18$

ANSWER: e

POINTS: 1

REFERENCES: 1.4.40

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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29. Solve the quadratic equation by completing the square.

$$x^2 - x - 12 = 0$$

- a. 4, -3
- b. 4,
- c. -4, -3
- d. -4, 3
- e. 4, 3

ANSWER: a

POINTS: 1

REFERENCES: 1.4.40

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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30. Solve the following quadratic equation by completing the square.

$$16x^2 = 48x - 27$$

- a. $x = \frac{9}{4}$

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b. $x = -\frac{9}{4}$

c. $x = \frac{9}{4}, \frac{3}{4}$

d. $x = -\frac{9}{4}, -\frac{3}{4}$

e. $x = -8, -3$

ANSWER: c

POINTS: 1

REFERENCES: 1.4.43

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

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31. Rewrite the quadratic portion of the algebraic expression as the sum or difference of two squares by completing the square.

$$\frac{1}{x^2 + 2x + 2}$$

a. $\frac{1}{(x+1)^2 - 1}$

b. $\frac{1}{(x-1)^2 + 1}$

c. $\frac{1}{(x+1)^2 + 1}$

d. $\frac{1}{(x-1)^2 - 1}$

e. $\frac{1}{(x+1)^2 + 2}$

ANSWER: c

POINTS: 1

REFERENCES: 1.4.49

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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32. Rewrite the quadratic portion of the algebraic expression as the sum or difference of two squares by completing the square.

$$\frac{1}{x^2 - 12x + 24}$$

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a. $\frac{1}{(x+6)^2-12}$

b. $\frac{1}{(x+6)^2+12}$

c. $\frac{1}{(x-6)^2-12}$

d. $\frac{1}{(x-9)^2-12}$

e. $\frac{1}{(x+9)^2+12}$

ANSWER: c
POINTS: 1
REFERENCES: 1.4.50
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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33. Rewrite the quadratic portion of the algebraic expression as the sum or difference of two squares by completing the square.

$$\frac{3}{x^2+4x-2}$$

a. $\frac{6}{(x+4)^2-3}$

b. $\frac{3}{(x+2)^2-6}$

c. $\frac{3}{(x-2)^2+6}$

d. $\frac{3}{(x-2)^2-6}$

e. $\frac{3}{(x+2)^2+6}$

ANSWER: b
POINTS: 1
REFERENCES: 1.4.51
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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34. Rewrite the quadratic portion of the algebraic expression as the sum or difference of two squares by completing the square.

$$\frac{1}{\sqrt{10x - x^2}}$$

a. $\frac{1}{\sqrt{25 + (x - 5)^2}}$

b. $\frac{1}{\sqrt{25 - (x - 5)^2}}$

c. $\frac{1}{\sqrt{25 - (x + 5)^2}}$

d. $\frac{1}{\sqrt{5 - (x - 25)^2}}$

e. $\frac{1}{\sqrt{25 + (x + 5)^2}}$

ANSWER: b

POINTS: 1

REFERENCES: 1.4.55

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:16 PM

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35. Rewrite the quadratic portion of the algebraic expression as the sum or difference of two squares by completing the square.

$$\frac{7}{\sqrt{13 - 6x - x^2}}$$

a. $\frac{7}{\sqrt{22 - (x + 2)^2}}$

b. $\frac{7}{\sqrt{22 - (x + 3)^2}}$

c. $\frac{7}{\sqrt{22 - (x - 3)^2}}$

d. $\frac{7}{\sqrt{22 + (x - 3)^2}}$

Section 1.4 - Quadratic Equations and Applications

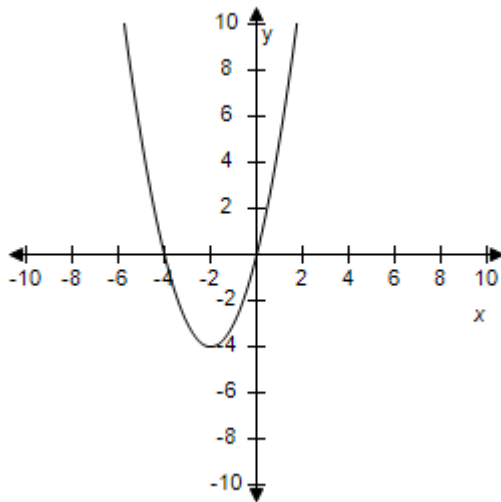
e. $\frac{7}{\sqrt{22 + (x + 3)^2}}$

ANSWER: b
POINTS: 1
REFERENCES: 1.4.56
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
DATE MODIFIED: 10/23/2014 5:27 AM

36. Use a graphing utility to graph the equation. Use the graph to approximate any x -intercepts of the graph.

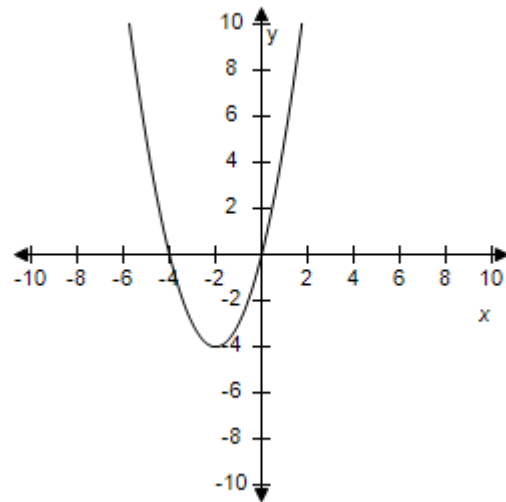
$y = (x + 2)^2 - 4$

a.



$x = 0, -4$

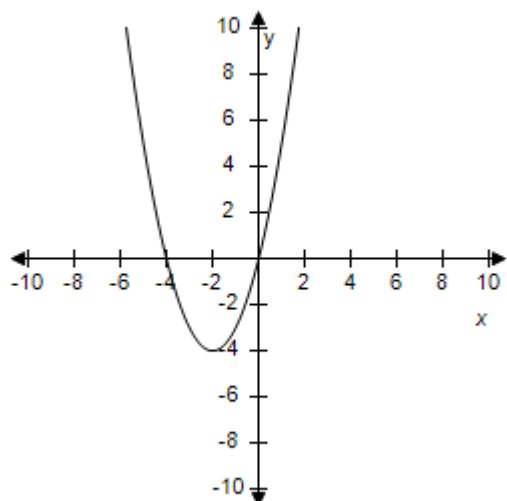
b.



$x = 0, -2$

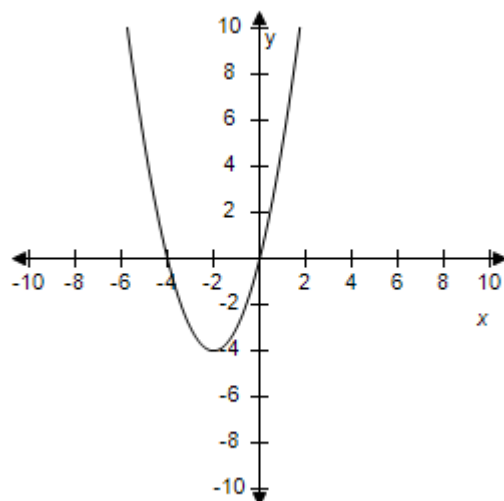
Section 1.4 - Quadratic Equations and Applications

c.



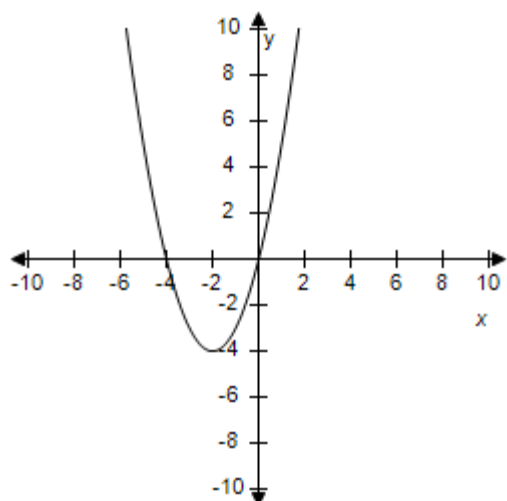
$$x = -4, -2$$

d.



$$x = -2$$

e.



$$x = 0, -2, -4$$

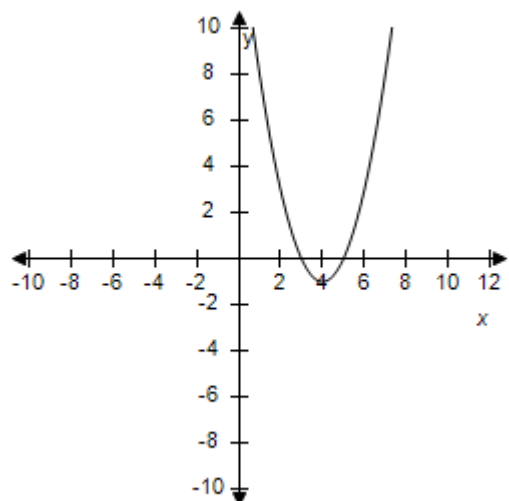
ANSWER: a
POINTS: 1
REFERENCES: 1.4.57
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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37. Use a graphing utility to graph the equation. Use the graph to approximate any x-intercepts of the graph.

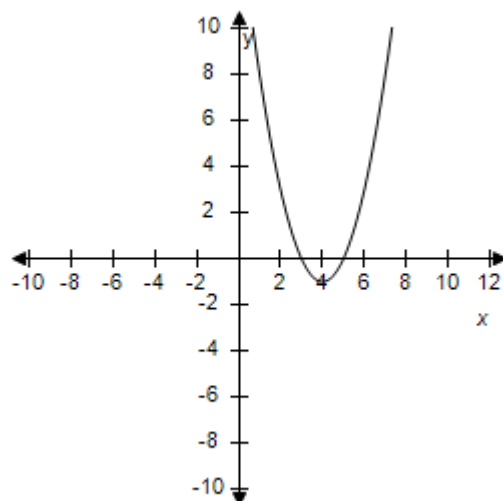
$$y = (x - 4)^2 - 1$$

Section 1.4 - Quadratic Equations and Applications

a.

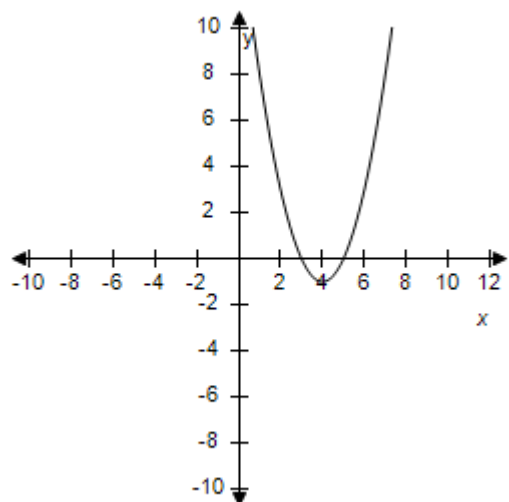


b.



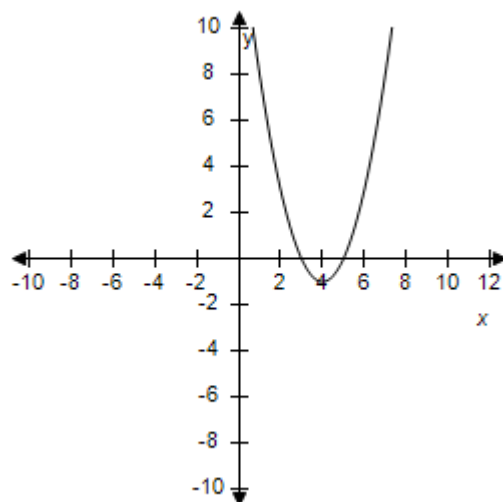
$x = 3, 5$

c.



$x = 3, 4$

d.

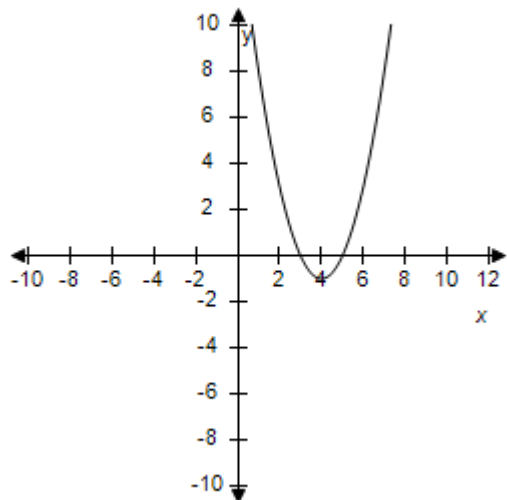


$x = 4, 5$

$x = 4$

Section 1.4 - Quadratic Equations and Applications

e.



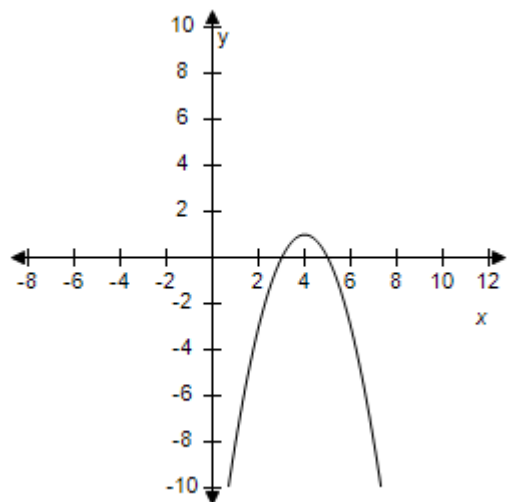
$$x = 3, 4, 5$$

ANSWER: a
POINTS: 1
REFERENCES: 1.4.58
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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38. Use a graphing utility to graph the equation. Use the graph to approximate any x-intercepts of the graph.

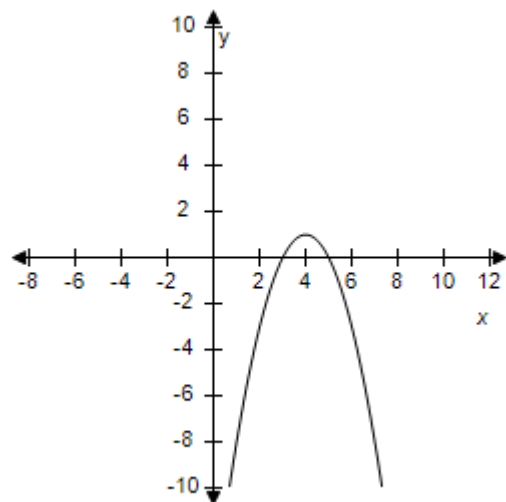
$$y = 1 - (x - 4)^2$$

a.



$$x = 3, 4$$

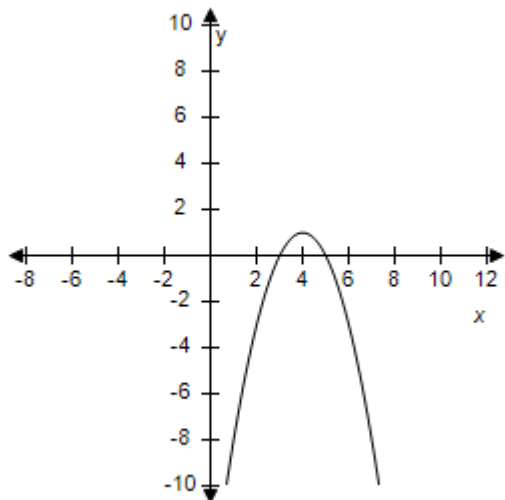
b.



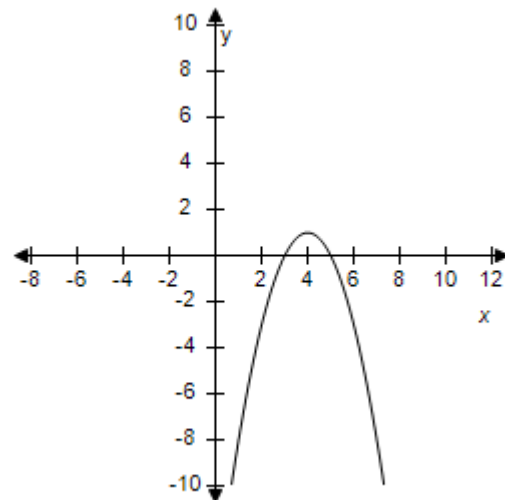
$$x = 4, 5$$

Section 1.4 - Quadratic Equations and Applications

c.



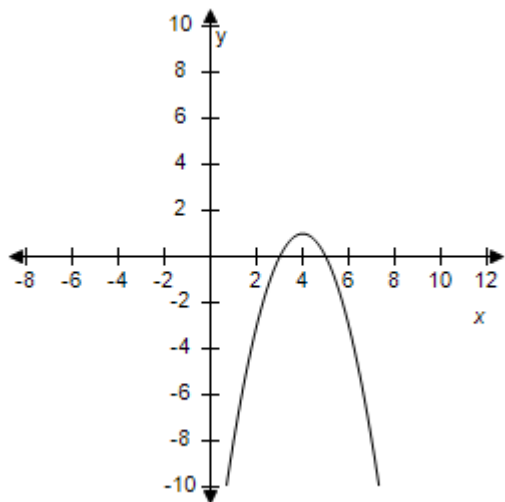
d.



$$x = 4$$

$$x = 3, 5$$

e.



$$x = 3, 4, 5$$

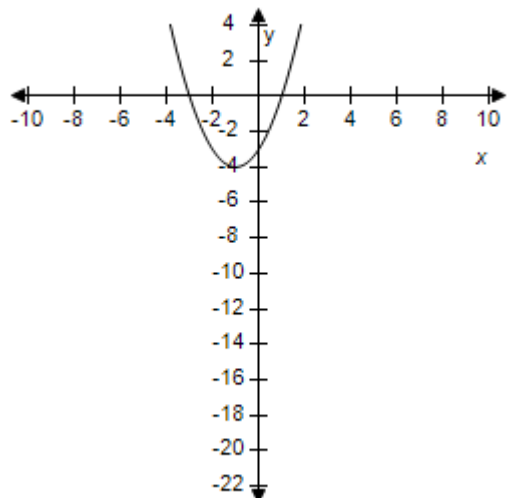
ANSWER: d
 POINTS: 1
 REFERENCES: 1.4.59
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
 DATE CREATED: 6/10/2014 4:16 PM
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39. Use a graphing utility to graph the equation. Use the graph to approximate any x-intercepts of the graph.

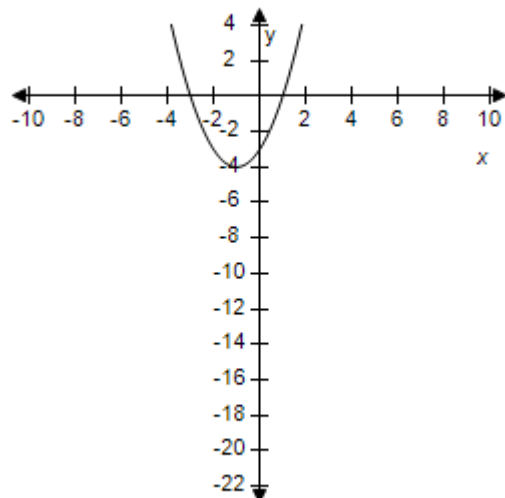
$$y = x^2 + 2x - 3$$

Section 1.4 - Quadratic Equations and Applications

a.

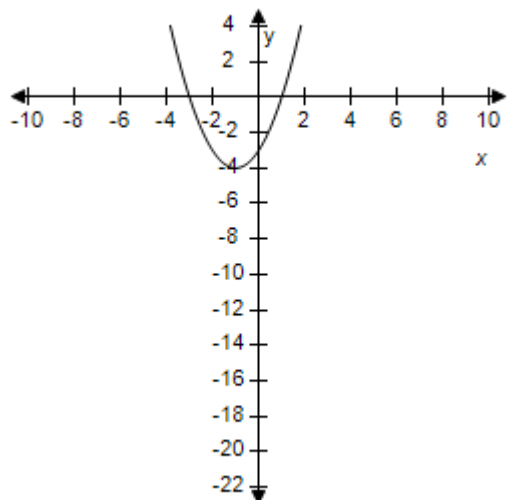


b.



$$x = 1, -3$$

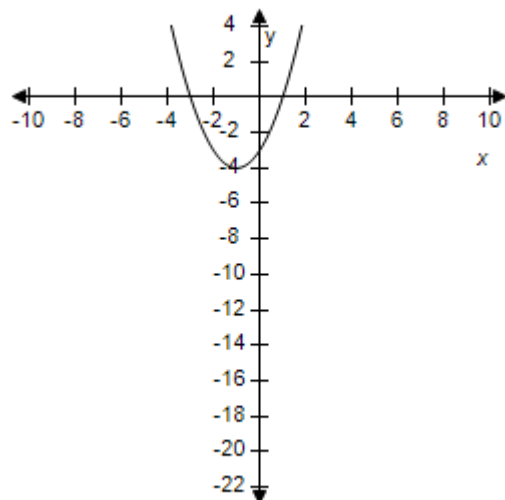
c.



$$x = 1, -1$$

$$x = -1$$

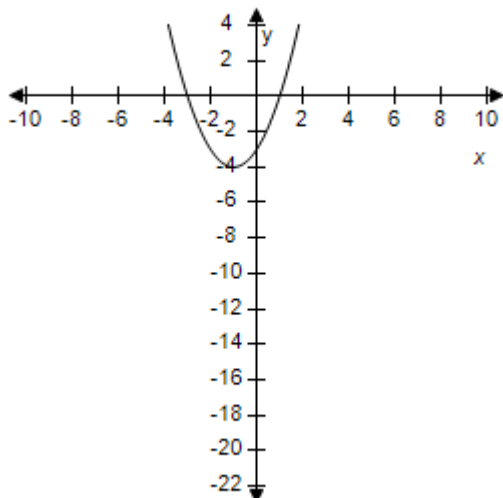
d.



$$x = -3, -1$$

Section 1.4 - Quadratic Equations and Applications

e.



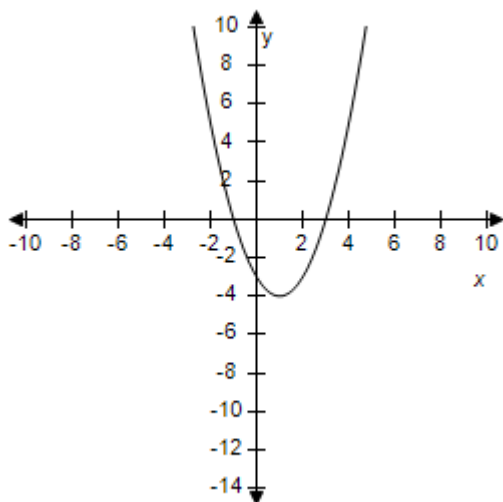
$$x = -3, -1, 1$$

ANSWER: a
POINTS: 1
REFERENCES: 1.4.63
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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40. Use a graphing utility to graph the equation. Use the graph to approximate any x-intercepts of the graph.

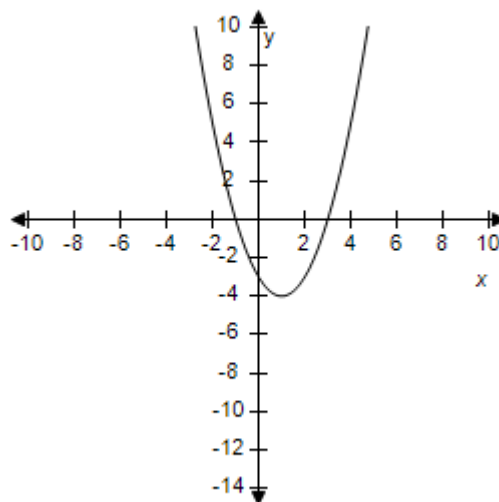
$$y = x^2 - 2x - 3$$

a.



$$x = -1, 1, 3$$

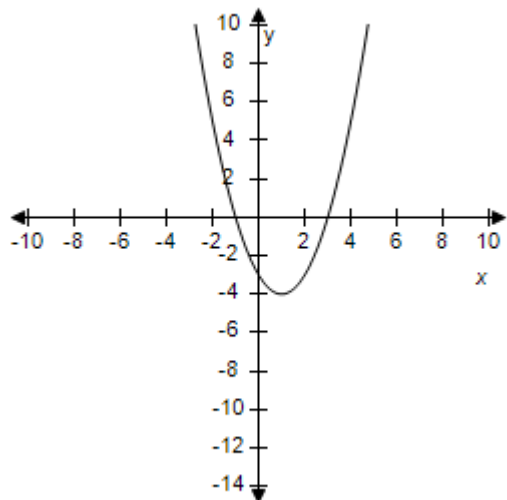
b.



$$x = 1$$

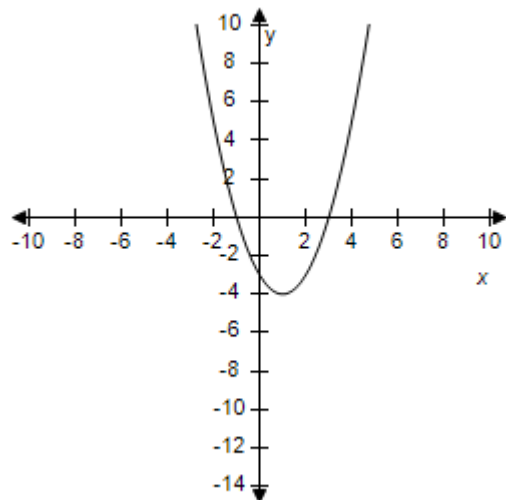
Section 1.4 - Quadratic Equations and Applications

c.



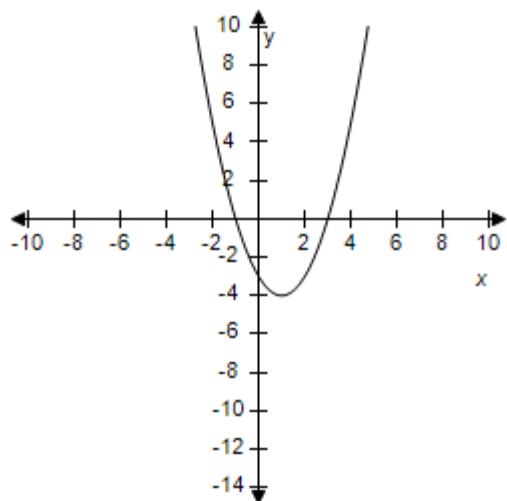
$$x = 1, 3$$

d.



$$x = -1, 1$$

e.



$$x = -1, 3$$

ANSWER: e
POINTS: 1
REFERENCES: 1.4.64
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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41. Use the Quadratic Formula to solve the equation.

$$49x^2 + 56x + 14 = 0$$

Section 1.4 - Quadratic Equations and Applications

a. $x = \frac{-\sqrt{2}-4}{7}, x = \frac{\sqrt{2}-4}{7}$

b. $x = \frac{-\sqrt{3}-3}{7}, x = \frac{\sqrt{3}-3}{7}$

c. $x = \frac{-\sqrt{3}-4}{7}, x = \frac{\sqrt{3}-4}{7}$

d. $x = \frac{-\sqrt{2}-5}{7}, x = \frac{\sqrt{2}-5}{7}$

e. $x = \frac{-\sqrt{3}-3}{7}, x = \frac{-\sqrt{3}-5}{7}$

ANSWER: a

POINTS: 1

REFERENCES: 1.4.76

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 9/25/2014 1:14 AM

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42. Use the Quadratic Formula to solve the equation.

$$x^2 - 18x + 79 = 0$$

a. $x = 11, x = 7$

b. $x = -\sqrt{2} + 9, x = \sqrt{2} + 9$

c. $x = -\sqrt{3} + 9, x = \sqrt{3} + 9$

d. $x = -9, x = 9$

e. $x = -\sqrt{2} + 10, x = \sqrt{2} + 10$

ANSWER: b

POINTS: 1

REFERENCES: 1.4.78

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:16 PM

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43. Use the Quadratic Formula to solve the equation.

$$52x - 169x^2 = 4$$

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a. $-\frac{2}{13}$

b. $\frac{1}{2}$

c. $-\frac{13}{2}$

d. $\frac{2}{13}$

e. $\frac{13}{2}$

ANSWER: d

POINTS: 1

REFERENCES: 1.4.89

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:16 PM

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44. Use the Quadratic Formula to solve the equation $-1.1x^2 - 1.3x + 4.7 = 0$. (Round your answer to three decimal places.)

a. $x = -4.797, x = 1.654$

b. $x = -1.274, x = -1.652$

c. $x = -2.741, x = 1.559$

d. $x = -1.475, x = -0.999$

e. $x = -3.882, x = 3.704$

ANSWER: c

POINTS: 1

REFERENCES: 1.4.91

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:16 PM

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45. Use the Quadratic Formula to solve $(\frac{4}{5}x - 10)^2 = 8x$

a. $x = \frac{50 + 25\sqrt{5}}{8}, x = \frac{50 - 25\sqrt{5}}{8}$

Section 1.4 - Quadratic Equations and Applications

b. $x = \frac{75+25\sqrt{3}}{8}, x = \frac{75-25\sqrt{3}}{8}$

c. $x = \frac{75+25\sqrt{3}}{4}, x = \frac{75-25\sqrt{3}}{4}$

d. $x = \frac{75+25\sqrt{5}}{8}, x = \frac{75-25\sqrt{5}}{8}$

e. $x = \frac{75+25\sqrt{5}}{4}, x = \frac{75-25\sqrt{5}}{4}$

ANSWER: e

POINTS: 1

REFERENCES: 1.4.96

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 9/25/2014 2:30 AM

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46. Use the Quadratic Formula to solve the equation $-50x^2 + 25x + 950 = 0$. (Round your answer to three decimal places.)

a. $x = -6.172, x = 4.711$

b. $x = -2.850, x = 2.058$

c. $x = -2.649, x = 1.405$

d. $x = -5.257, x = 6.761$

e. $x = -4.116, x = 4.616$

ANSWER: e

POINTS: 1

REFERENCES: 1.4.101

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:16 PM

DATE MODIFIED: 4/9/2021 8:26 AM

47. Solve the following quadratic equation using any convenient method.

$$20x^2 = -x$$

a. $x = -\frac{1}{20}, x = 0$

b. $x = -1$

c. $x = -\frac{1}{20}, x = \frac{1}{20}$

Section 1.4 - Quadratic Equations and Applications

d. $x = -\frac{1}{20}$

e. $x = -1, x = 20$

ANSWER: a

POINTS: 1

REFERENCES: 1.4.106

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 9/25/2014 3:57 AM

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48. Solve the equation using any convenient method.

$$x^2 - 10x + 25 = 0$$

a. 5

b. 9

c. 6

d. 8

e. 7

ANSWER: a

POINTS: 1

REFERENCES: 1.4.108

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:16 PM

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49. Solve the following quadratic equation using any convenient method.

$$(-9x + 11)^2 = 81x^2$$

a. $x = -\frac{11}{9}, x = 0$

b. $x = \frac{11}{9}$

c. $x = -\frac{11}{18}$

d. $x = \frac{11}{18}$

e. $x = -\frac{11}{9}, x = \frac{11}{9}$

ANSWER: d

POINTS: 1

REFERENCES: 1.4.111

Section 1.4 - Quadratic Equations and Applications

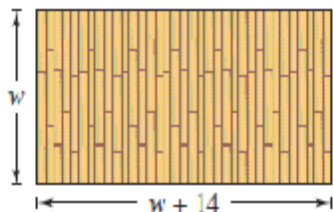
QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 9/25/2014 4:14 AM

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50. The floor of a one-story building is 14 feet longer than it is wide (see figure). The building has 2,760 square feet of floor space.



Write a quadratic equation for the area of the floor in terms of w and find the length and width of the floor.

a. $w(w + 14) = 2,760$
 $w = 50$ ft and $l = 60$ ft

b. $w(w + 14) = 2,760$
 $w = 49$ ft and $l = 60$ ft

c. $w(w + 14) = 2,760$
 $w = 47$ ft and $l = 60$ ft

d. $w(w + 14) = 2,760$
 $w = 48$ ft and $l = 60$ ft

e. $w(w + 14) = 2,760$
 $w = 46$ ft and $l = 60$ ft

ANSWER: e

POINTS: 1

REFERENCES: 1.4.113

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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51. Write $x(x + 9) = 3x^2 - 8$ in general form.

a. $2x^2 - 17 = 0$

b. $4x^2 + 9x - 8 = 0$

c. $4x^2 - 9x + 8 = 0$

Section 1.4 - Quadratic Equations and Applications

d. $2x^2 - 9x - 8 = 0$

e. $2x^2 + 9x + 8 = 0$

ANSWER: d
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 1-4
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
DATE MODIFIED: 9/25/2014 4:56 AM

52. Solve $4 + 16x^2 - 16x = 0$ by factoring.

a. $x = \frac{1}{2}$

b. $x = -4, 2$

c. $x = \frac{1}{2}, -\frac{1}{2}$

d. $x = -2, 4$

e. $x = 2, -2$

ANSWER: a
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 5-14
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/25/2014 4:59 AM
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53. Solve the following quadratic equation with respect to w by factoring.

$$(w - a)^2 - 9b^2 = 0$$

a. $w = a, 9b$

b. $w = a + 3b, -a + 3b$

c. $w = a, -9b$

d. $w = a + 3b, a - 3b$

e. $w = -a - 3b, -a + 3b$

ANSWER: d
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 5-14
QUESTION TYPE: Multi-Mode (Multiple choice)

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HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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54. Solve $(x + 4)^2 = 9$ by extracting square roots.

- a. $x = -3, -5$
- b. $x = -3, -10$
- c. $x = -1, -7$
- d. $x = 0, -9$
- e. $x = -4, -6$

ANSWER: c
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 15-22
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
DATE MODIFIED: 10/23/2014 7:06 AM

55. Solve $x^2 + 12x + 33 = 0$ by completing the square.

- a. $x = -36 \pm \sqrt{3}$
- b. $x = -6 \pm \sqrt{3}$
- c. $x = -33 \pm \sqrt{3}$
- d. $x = 33 \pm \sqrt{3}$
- e. $x = 6 \pm \sqrt{3}$

ANSWER: b
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 23-32
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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56. Solve $9x^2 + 12x - 2 = 0$ using the quadratic formula.

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a. $x = \frac{2 \pm \sqrt{6}}{3}$

b. $x = \frac{\pm \sqrt{6}}{3}$

c. $x = \frac{-3 \pm \sqrt{6}}{2}$

d. $x = \frac{-2 \pm \sqrt{6}}{3}$

e. $x = \frac{2}{3}$

ANSWER: d

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 45-52

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 9/25/2014 7:23 AM

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57. Solve $4x^2 - 6 = 0$ using the quadratic formula.

a. $x = \frac{-3 \pm \sqrt{6}}{2}$

b. $x = \frac{\pm \sqrt{6}}{2}$

c. $x = \frac{-2 \pm \sqrt{6}}{3}$

d. $x = \frac{3 \pm \sqrt{6}}{2}$

e. $x = -\frac{3}{2}$

ANSWER: b

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 45-52

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

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Section 1.4 - Quadratic Equations and Applications

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58. Solve $-x^2 + 2x + 2 = 0$ using the quadratic formula. Round answers to the nearest thousandth.

- a. $x = -1.644, 2.862$
- b. $x = -1.182, 2.402$
- c. $x = -0.732, 2.732$
- d. $x = -0.609, 1.732$
- e. $x = -0.264, 2.823$

ANSWER: c
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 45-52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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59. Solve:

$$-12x^2 + 30x + 18 = 0$$

- a. $x = \frac{2}{5}, -2$
- b. $x = \frac{1}{2}, \frac{2}{5}$
- c. $x = -3, \frac{1}{2}$
- d. $x = -3, -2$
- e. $x = 3, -\frac{1}{2}$

ANSWER: e
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 53-60
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/25/2014 8:19 AM
DATE MODIFIED: 5/15/2015 3:16 AM

60. Solve the following equation using any convenient method.

$$(x + 2)^2 = -25$$

- a. $x = -2, 5$
- b. $x = -2 \pm 5i$
- c. $x = -25, 5$

Section 1.4 - Quadratic Equations and Applications

d. $x = -25, -2$

e. $x = -5 \pm 2i$

ANSWER: b
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 53-60
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
DATE MODIFIED: 9/25/2014 8:52 AM

61. Solve the following equation using any convenient method.

$$x^2 - 4x + \frac{37}{9} = 0$$

a. $x = -1 \pm \frac{2}{3}i$

b. $x = -3, -2$

c. $x = -2, 7$

d. $x = 2 \pm \frac{1}{3}i$

e. $x = 6 \pm i$

ANSWER: d
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 53-60
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/26/2014 1:37 AM
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62. Solve the following equation using any convenient method.

$$(x-7)^2 = x^2$$

a. $x = -\frac{49}{4}$

b. $x = 49$

c. $x = 7$

d. $x = -7, 4$

e. $x = \frac{7}{2}$

ANSWER: e
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 53-60

Section 1.4 - Quadratic Equations and Applications

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 9/26/2014 2:14 AM

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63. Find two quadratic equations having the following solutions.

$$5 + 3\sqrt{2}, 5 - 3\sqrt{2}$$

a. $x^2 - 10x + 18 = 0$; $-2x^2 + 20x - 36 = 0$

b. $x^2 + 7 = 0$; $-2x^2 - 14 = 0$

c. $x^2 - 10x + 7 = 0$; $-2x^2 + 20x - 14 = 0$

d. $x^2 + 6x + 7 = 0$; $-2x^2 - 12x - 14 = 0$

e. $x^2 - 10x + 6 = 0$; $-2x^2 + 20x - 12 = 0$

ANSWER: c

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 67-76

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:16 PM

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64. Find two quadratic equations having the following solutions.

$$4 + 7i, 4 - 7i$$

a. $x^2 - 8x + 65 = 0$; $-x^2 + 8x - 65 = 0$

b. $x^2 - 8x + 9 = 0$; $-x^2 - 4x + 65 = 0$

c. $x^2 + 8x + 23 = 0$; $-x^2 - 8x - 33 = 0$

d. $-x^2 - 14x + 65 = 0$; $x^2 + 14x - 65 = 0$

e. $x^2 + 12x + 11 = 0$; $-x^2 - 14x - 3 = 0$

ANSWER: a

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 67-76

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

Section 1.4 - Quadratic Equations and Applications

DATE CREATED: 6/10/2014 4:16 PM

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Section 1.5 - Complex Numbers

1. Find real numbers a and b such that the equation is true.

$$a + bi = -8 + 18i$$

- a. $a = -12, b = 22$
- b. $a = -10, b = 20$
- c. $a = -11, b = 21$
- d. $a = -9, b = 19$
- e. $a = -8, b = 18$

ANSWER: e
POINTS: 1
REFERENCES: 1.5.5
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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2. Find real numbers a and b such that the equation is true.

$$a + bi = 2 + 6i$$

- a. $a = 4, b = 8$
- b. $a = 6, b = 10$
- c. $a = 2, b = 6$
- d. $a = 3, b = 2$
- e. $a = 5, b = 9$

ANSWER: c
POINTS: 1
REFERENCES: 1.5.6
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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3. Find real numbers a and b such that the equation is true.

$$(a - 4) + (b + 5)i = 13 + 11i$$

- a. $a = 20, b = 9$
- b. $a = 18, b = 7$
- c. $a = 19, b = 8$
- d. $a = 17, b = 6$

Section 1.5 - Complex Numbers

e. $a = 21, b = 10$

ANSWER: d
POINTS: 1
REFERENCES: 1.5.7
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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4. Find real numbers a and b such that the equation is true.

$$(a + 4) + 2bi = 4 - 17i$$

- a. $a = 0, b = -\frac{21}{2}$
- b. $a = 0, b = -\frac{17}{2}$
- c. $a = 0, b = -\frac{19}{2}$
- d. $a = 0, b = -9$
- e. $a = 0, b = -10$

ANSWER: b
POINTS: 1
REFERENCES: 1.5.8
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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5. Write the complex number in standard form.

$$8 + \sqrt{-25}$$

- a. $8 + 25i$
- b. $11 - 8i$
- c. $11 + 8i$
- d. $8 - 5i$
- e. $8 + 5i$

ANSWER: e
POINTS: 1
REFERENCES: 1.5.9
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

Section 1.5 - Complex Numbers

STUDENT ENTRY MODE: Basic

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6. Write the complex number in standard form.

$$3 - \sqrt{-30}$$

a. $3 + \sqrt{30}i$

b. $4 + \sqrt{30}i$

c. $7 - \sqrt{30}i$

d. $3 - \sqrt{30}i$

e. $4 - \sqrt{30}i$

ANSWER: d

POINTS: 1

REFERENCES: 1.5.11

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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7. Write the complex number in standard form.

$$\sqrt{-36}$$

a. $\sqrt{37}i$

b. $-\sqrt{39}i$

c. $6i$

d. $\sqrt{39}i$

e. $-6i$

ANSWER: c

POINTS: 1

REFERENCES: 1.5.13

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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8. Write the complex number in standard form.

$$\sqrt{-36}$$

Section 1.5 - Complex Numbers

- a. $6i$
- b. $-6i$
- c. $36i$
- d. $7i$
- e. $-36i$

ANSWER: a
POINTS: 1
REFERENCES: 1.5.14
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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9. Write the complex number in standard form.

$$-4i + i^2$$

- a. $-1 + 4i$
- b. $-1 + 7i$
- c. $1 + 4i$
- d. $1 - 4i$
- e. $-1 - 4i$

ANSWER: e
POINTS: 1
REFERENCES: 1.5.17
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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10. Write the complex number in standard form.

$$\sqrt{-17.64}$$

- a. $17.64i$
- b. $4.2i$
- c. $7.2i$
- d. $-4.2i$
- e. $-17.64i$

ANSWER: b
POINTS: 1
REFERENCES: 1.5.19

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QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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11. Write the complex number in standard form.

$$\sqrt{-0.0001}$$

- a. $-0.01i$
- b. $-0.0001i$
- c. $3.01i$
- d. $0.01i$
- e. $0.0001i$

ANSWER: d
POINTS: 1
REFERENCES: 1.5.20
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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12. Perform the addition or subtraction and write the result in standard form.

$$(7 + i) + (5 - 5i)$$

- a. $16 - 8i$
- b. $15 - 7i$
- c. $12 - 4i$
- d. $14 - 6i$
- e. $13 - 5i$

ANSWER: c
POINTS: 1
REFERENCES: 1.5.21
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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13. Perform the addition or subtraction and write the result in standard form.

$$(12 - i) - (7 - i)$$

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- a. 5
- b. 7
- c. 9
- d. 8
- e. 6

ANSWER: a
POINTS: 1
REFERENCES: 1.5.23
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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14. Perform the addition or subtraction and write the result in standard form.

$$19i - (15 - 3i)$$

- a. $15 + 22i$
- b. $-15 - 22i$
- c. $15 - 22i$
- d. $-15 + 22i$
- e. $-15 + 25i$

ANSWER: d
POINTS: 1
REFERENCES: 1.5.27
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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15. Perform the addition or subtraction and write the result in standard form.

$$33 + (-10 + 13i) + 20i$$

- a. $23 + 33i$
- b. $23 - 33i$
- c. $-23 - 33i$
- d. $-23 + 33i$
- e. $23 + 35i$

ANSWER: a
POINTS: 1
REFERENCES: 1.5.28

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QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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16. Perform the addition or subtraction and write the result in standard form.

$$(1.5 + 6.7i) + (-7.3 + 6.5i)$$

- a. $-5.8 + 14.2i$
- b. $-5.8 - 14.2i$
- c. $-5.8 - 13.2i$
- d. $-5.8 + 13.2i$
- e. $-5.8 + 15.2i$

ANSWER: d
POINTS: 1
REFERENCES: 1.5.30
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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17. Perform the operation and write the result in standard form.

$$(1 + i)(9 - 8i)$$

- a. $18 + i$
- b. $17 + i$
- c. $19 + i$
- d. $21 + i$
- e. $20 + i$

ANSWER: b
POINTS: 1
REFERENCES: 1.5.31
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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18. Perform the operation and write the result in standard form.

$$19i(1 - 6i)$$

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- a. $115+19i$
- b. $118+19i$
- c. $116+19i$
- d. $114+19i$
- e. $117+19i$

ANSWER: d
POINTS: 1
REFERENCES: 1.5.33
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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19. Perform the operation and write the result in standard form.

$$(\sqrt{19} + \sqrt{8}i)(\sqrt{19} - \sqrt{8}i)$$

- a. 31
- b. 27
- c. 28
- d. 29
- e. 30

ANSWER: b
POINTS: 1
REFERENCES: 1.5.35
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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20. Perform the operation and write the result in standard form.

$$(4 + 5i)^2$$

- a. $-9+40i$
- b. $-9-40i$
- c. $9-40i$
- d. $-40+9i$
- e. $9+40i$

ANSWER: a
POINTS: 1

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REFERENCES: 1.5.37
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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21. Perform the operation and write the result in standard form.

$$(8 - 7i)^2$$

- a. $15 - 112i$
- b. $-15 - 112i$
- c. $15 + 112i$
- d. $17 - 112i$
- e. $-15 + 112i$

ANSWER: a
POINTS: 1
REFERENCES: 1.5.38
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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22. Write the complex conjugate of the complex number. Then multiply the number by its complex conjugate.

$$5 + 3i$$

- a. $5 + 3i, 34$
- b. $5 - 3i, 9$
- c. $5 + 3i, 9$
- d. $-5 - 3i, 34$
- e. $5 - 3i, 34$

ANSWER: e
POINTS: 1
REFERENCES: 1.5.41
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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23. Write the complex conjugate of the complex number. Then multiply the number by its complex conjugate.

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$$2 - 14i$$

- a. $2 + 14i$, 196
- b. $2 - 14i$, 196
- c. $2 - 14i$, 200
- d. $-2 + 14i$, 196
- e. $2 + 14i$, 200

ANSWER: e
POINTS: 1
REFERENCES: 1.5.42
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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24. Write the complex conjugate of the complex number. Then multiply the number by its complex conjugate.

$$-14 + \sqrt{13}i$$

- a. $-14 - \sqrt{13}i$, 209
- b. $14 - \sqrt{13}i$, 209
- c. $-14 + \sqrt{13}i$, 209
- d. $14 + \sqrt{13}i$, 209
- e. $-13 - \sqrt{14}i$, 209

ANSWER: a
POINTS: 1
REFERENCES: 1.5.44
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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25. Write the complex conjugate of the complex number. Then multiply the number by its complex conjugate.

$$-1 - \sqrt{7}i$$

- a. $-1 + \sqrt{7}i$, 100
- b. $-1 + \sqrt{7}i$, 8

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c. $-1 + \sqrt{7}i, -6$

d. $1 - \sqrt{7}i, 100$

e. $1 + \sqrt{7}i, 8$

ANSWER: b
POINTS: 1
REFERENCES: 1.5.43
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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26. Write the complex conjugate of the complex number. Then multiply the number by its complex conjugate.

$\sqrt{-39}$

a. $-38i, 39$

b. $\sqrt{39}i, 39$

c. $1521i, 39$

d. $-\sqrt{39}i, 39$

e. $-i, 39$

ANSWER: d
POINTS: 1
REFERENCES: 1.5.45
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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27. Write the quotient in standard form.

$\frac{2}{i}$

a. $-\frac{i}{2}$

b. $-\frac{2}{i}$

c. $-2i$

d. $\frac{i}{2}$

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e. $2i$

ANSWER: c
POINTS: 1
REFERENCES: 1.5.49
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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28. Write the quotient in standard form.

$$-\frac{20}{5i}$$

a. $4i$

b. $\frac{4}{i}$

c. $-\frac{i}{4}$

d. $-4i$

e. $-\frac{4}{i}$

ANSWER: a
POINTS: 1
REFERENCES: 1.5.50
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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29. Write the quotient in standard form.

$$\frac{11}{1-i}$$

a. $\frac{11}{2+i}$

b. $\frac{11}{2}i$

c. $\frac{11}{2-i}$

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d. $\frac{11}{2} + \frac{11}{2}i$

e. $\frac{11}{2} - \frac{11}{2}i$

ANSWER: d
POINTS: 1
REFERENCES: 1.5.52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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30. Write the quotient in standard form.

$$\frac{4+i}{4-i}$$

a. $\frac{15}{17} - \frac{8}{17}i$

b. $\frac{15}{17} + \frac{17}{8}i$

c. $\frac{15}{17} + \frac{8}{17}i$

d. $\frac{17}{15} + \frac{17}{8}i$

e. $\frac{17}{15} + \frac{8}{17}i$

ANSWER: c
POINTS: 1
REFERENCES: 1.5.53
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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31. Write the quotient in standard form.

$$\frac{7-9i}{i}$$

a. $-7-9i$

b. $-9-7i$

c. $-9+7i$

d. $9-7i$

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e. $9 + 7i$

ANSWER: b
POINTS: 1
REFERENCES: 1.5.55
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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32. Write the quotient in standard form.

$$\frac{6 + 12i}{4i}$$

a. $3 - \frac{3}{2}i$

b. $3 - 3i$

c. $3 + \frac{3}{2}i$

d. $3i - \frac{3}{2}$

e. $3i + \frac{3}{2}$

ANSWER: a
POINTS: 1
REFERENCES: 1.5.56
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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33. Perform the operation and write the result in standard form.

$$\frac{3}{1+i} - \frac{4}{1-i}$$

a. $-\frac{1}{2} + \frac{2}{7}i$

b. $-\frac{1}{2} - \frac{2}{7}i$

c. $-\frac{1}{2} + \frac{7}{2}i$

d. $\frac{7}{2} - \frac{1}{2}i$

Section 1.5 - Complex Numbers

e. $\frac{1}{-2} - \frac{7}{2}i$

ANSWER: e
POINTS: 1
REFERENCES: 1.5.59
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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34. Write the complex number in standard form.

$$\sqrt{-6} \cdot \sqrt{-7}$$

- a. $-\sqrt{6}$
- b. $\sqrt{7}$
- c. $\sqrt{6}$
- d. $-\sqrt{42}$
- e. $\sqrt{42}$

ANSWER: d
POINTS: 1
REFERENCES: 1.5.63
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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35. Write the complex number in standard form.

$$\sqrt{-20} \times \sqrt{-18}$$

- a. $6\sqrt{10}$
- b. $-\sqrt{20}$
- c. $-6\sqrt{10}$
- d. $\sqrt{18}$
- e. $\sqrt{20}$

ANSWER: c
POINTS: 1
REFERENCES: 1.5.64

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QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:19 PM
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36. Write the complex number in standard form.

$$(\sqrt{-48})^2$$

- a. $-\sqrt{48}$
- b. -48
- c. $\sqrt{23}$
- d. 48
- e. $\sqrt{48}$

ANSWER: b
POINTS: 1
REFERENCES: 1.5.65
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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37. Write the complex number in standard form.

$$(4 + \sqrt{-6})(6 - \sqrt{-14})$$

- a. $(24 - 2\sqrt{21}) - (6\sqrt{6} - 4\sqrt{14})i$
- b. $(24 + 2\sqrt{21}) + (6\sqrt{6} - 4\sqrt{14})i$
- c. $(24 - 2\sqrt{21}) + (6\sqrt{6} - 4\sqrt{14})i$
- d. $(24 + 2\sqrt{21}) - (6\sqrt{6} - 4\sqrt{14})i$
- e. $(24 + 2\sqrt{21}) + (6\sqrt{6} + 4\sqrt{14})i$

ANSWER: b
POINTS: 1
REFERENCES: 1.5.67
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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38. Write the complex number in standard form.

$$(2 - \sqrt{-15})^2$$

- a. $-11 + \sqrt{15}i$
- b. $-11 + 4\sqrt{15}i$
- c. $-11 - \sqrt{15}i$
- d. $-11 - 4\sqrt{15}i$
- e. $4 - 15\sqrt{5}i$

ANSWER: d

POINTS: 1

REFERENCES: 1.5.68

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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39. Solve the equation and write complex solutions in standard form.

$$x^2 + 10x + 29 = 0$$

- a. $x = 10 - 2i, 10 + 2i$
- b. $x = -2 - 5i, -2 + 5i$
- c. $x = -5 + 4i, -5 - 4i$
- d. $x = -5 - 2i, -5 + 2i$
- e. $x = -2 + 25i, -2 - 25i$

ANSWER: d

POINTS: 1

REFERENCES: 1.5.69

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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40. Solve the equation and write complex solutions in standard form.

$$x^2 - 18x + 91 = 0$$

- a. $x = 9 + \sqrt{10}i, 9 - \sqrt{10}i$
- b. $x = 10 + \sqrt{2}i, 10 - \sqrt{2}i$
- c. $x = 9 + \sqrt{2}i, 9 - \sqrt{2}i$

Section 1.5 - Complex Numbers

d. $x = 10 + \sqrt{10}i, 10 - \sqrt{10}i$

e. $x = 2 + \sqrt{10}i, 2 - \sqrt{10}i$

ANSWER: a
POINTS: 1
REFERENCES: 1.5.70
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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41. Simplify the complex number and write it in standard form.

$-5i^3 + i^2$

- a. $1 + 5i$
- b. $-1 - 5i$
- c. $-5i$
- d. $1 - 5i$
- e. $-1 + 5i$

ANSWER: e
POINTS: 1
REFERENCES: 1.5.79
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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42. Simplify the complex number and write it in standard form.

$3i^2 - 7i^3$

- a. $-7 + 3i$
- b. $3 + 7i$
- c. $-3 - 7i$
- d. $-3 + 7i$
- e. $3 - 7i$

ANSWER: d
POINTS: 1
REFERENCES: 1.5.80
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

Section 1.5 - Complex Numbers

STUDENT ENTRY MODE: Basic

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43. Simplify the complex number and write it in standard form.

$$-42i^5$$

a. $-42i^3$

b. $42i^3$

c. $-42i$

d. -42

e. $42i$

ANSWER: c

POINTS: 1

REFERENCES: 1.5.81

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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44. Simplify the complex number and write it in standard form.

$$(\sqrt{-57})^3$$

a. $185,193i$

b. $-57i$

c. $-57\sqrt{57}i$

d. $57\sqrt{57}i$

e. $-185,193i$

ANSWER: c

POINTS: 1

REFERENCES: 1.5.83

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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45. Simplify the complex number and write it in standard form.

Section 1.5 - Complex Numbers

$$\frac{14}{i^3}$$

- a. $14i^3$
- b. $-14i^3$
- c. 14
- d. $-14i$
- e. $14i$

ANSWER: e
POINTS: 1
REFERENCES: 1.5.85
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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46. Simplify the complex number and write it in standard form.

$$\frac{1}{(2i)^3}$$

- a. $\frac{1}{2}i$
- b. $-\frac{1}{8}i$
- c. $\frac{1}{8}i$
- d. $-\frac{1}{2}i$
- e. $8i$

ANSWER: c
POINTS: 1
REFERENCES: 1.5.86
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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47. Simplify the complex number and write it in standard form.

$$(2i)^4$$

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- a. 16
- b. -16
- c. $16i$
- d. $-16i$
- e. $2i$

ANSWER: a
POINTS: 1
REFERENCES: 1.5.87
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:19 PM
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48. Simplify the complex number and write it in standard form.

$$(-i)^5$$

- a. -1
- b. $-i$
- c. 1
- d. i
- e. 5

ANSWER: b
POINTS: 1
REFERENCES: 1.5.88
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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49. Raise the complex number to the fourth power.

$$4i$$

- a. 256
- b. -64
- c. 64
- d. 16
- e. -256

ANSWER: a
POINTS: 1
REFERENCES: 1.5.91ac
QUESTION TYPE: Multi-Mode (Multiple choice)

Section 1.5 - Complex Numbers

HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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50. Describe the error.

$$\sqrt{-8}\sqrt{-8} = \sqrt{(-8)(-8)} = \sqrt{64} = 8$$

a. $\sqrt{-8}\sqrt{-8} = \sqrt{8i}\sqrt{8i} = 8i = -8i$

b. $\sqrt{-8}\sqrt{-8} = \sqrt{8i}\sqrt{8i} = -64$

c. $\sqrt{-8}\sqrt{-8} = \sqrt{8i}\sqrt{8i} = 8i$

d. $\sqrt{-8}\sqrt{-8} = \sqrt{8i}\sqrt{8i} = 8i^2 = -8$

e. $\sqrt{-8}\sqrt{-8} = \sqrt{8i}\sqrt{8i} = 8i^2 = 8$

ANSWER: d
POINTS: 1
REFERENCES: 1.5.99
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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51. Do the operation and express the answer in $a + bi$ form.

$$(5 - 5i) + (8 + 3i)$$

a. $2 - 13i$

b. $-13 + 2i$

c. $13 + 2i$

d. $-13 - 2i$

e. $13 - 2i$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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52. Do the operation and express the answer in $a + bi$ form.

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$$(5 - \sqrt{-25}) - (2i - 3)$$

- a. $-8 + 14i$
- b. $8 + 7i$
- c. $-8 + 7i$
- d. $-8 - 7i$
- e. $8 - 7i$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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53. Do the operation and express the answer in $a + bi$ form.

$$(9 - \sqrt{-100}) + (10 + \sqrt{-36})$$

- a. $19 - 4i$
- b. $-38 - 8i$
- c. $19 + 4i$
- d. $-38 + 8i$
- e. $-19 + 4i$

ANSWER: a
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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54. Do the operation and express the answer in $a + bi$ form.

$$(5 + \sqrt{-16})(4 - \sqrt{-4})$$

- a. $28 - 5i$
- b. $-28 + 6i$
- c. $-5 + 6i$
- d. $5 - 6i$
- e. $28 + 6i$

ANSWER: e
POINTS: 1

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QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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55. Do the operation and express the answer in $a + bi$ form.

$$\frac{-19}{i^{36}}$$

- a. $19i$
- b. $-19i$
- c. $-190i$
- d. -19
- e. 19

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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56. Simplify the expression.

$$i^{-14}$$

- a. i
- b. $-3i$
- c. $-i$
- d. -1
- e. 1

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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57. Do the operation and express the answer in $a + bi$ form.

$$\frac{17}{i^{31}}$$

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- a. $-17i$
- b. $-85i$
- c. -17
- d. $17i$
- e. 17

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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58. Find the values of x and y .

$$x + 59i = y - yi$$

$$x = \underline{\hspace{2cm}}$$

$$y = \underline{\hspace{2cm}}$$

ANSWER: $-59; -59$
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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59. Do the operation and express the answer in $a + bi$ form. Do not use parentheses in your answer.

$$(3 - 8i) + (10 + 5i)$$

ANSWER: $13 - 3i$
POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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60. Do the operation and express the answer in $a + bi$ form. Use fractions in your answer.

$$\frac{1}{9 + i}$$

ANSWER: $\frac{9}{82} - \frac{i}{82}$

Section 1.5 - Complex Numbers

POINTS: 1
QUESTION TYPE: Subjective Short Answer
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.6 - Other Types of Equations

1. Find all solutions of the equation.

$$6x^4 - 22x^2 = 0$$

a. $0, \pm \frac{\sqrt{33}}{3}$

b. $0, \pm \frac{\sqrt{3}}{33}$

c. $0, \frac{\sqrt{33}}{3}$

d. $0, \frac{\sqrt{3}}{33}$

e. $0, -\frac{\sqrt{33}}{3}$

ANSWER: a
POINTS: 1
REFERENCES: 1.6.5
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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2. Find all solutions of the equation.

$$x^4 - 2401 = 0$$

a. $-7, -7i$

b. $7, \pm 7i$

c. $\pm 7, \pm 7i$

d. $7, 7i$

e. $\pm 7, 7i$

ANSWER: c
POINTS: 1
REFERENCES: 1.6.7
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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3. Find all solutions of the equation.

Section 1.6 - Other Types of Equations

$$2x^3 + 20x^2 + 50x = 0$$

- a. $\pm 2, 0$
- b. $5, 0$
- c. $-5, 0$
- d. $\pm 5, 0$
- e. $-2, 0$

ANSWER: c
POINTS: 1
REFERENCES: 1.6.11
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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4. Find all solutions of the equation.

$$x^3 - 8x^2 - x + 8 = 0$$

- a. $8, -1$
- b. $-8, -1$
- c. $-8, 1, -1$
- d. $8, 1, -1$
- e. $8, 1$

ANSWER: d
POINTS: 1
REFERENCES: 1.6.13
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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5. Find all solutions of the equation.

$$x^4 + 6x^3 - 216x - 1296 = 0$$

- a. $\pm 6, -3 - 3\sqrt{3}i$
- b. $\pm 6, 3 \pm 3\sqrt{3}i$
- c. $\pm 6, -3 + 3\sqrt{3}i$
- d. $\pm 6, -3 \pm 3\sqrt{3}i$

Section 1.6 - Other Types of Equations

e. $6, -3 \pm 3\sqrt{3}i$

ANSWER: d
POINTS: 1
REFERENCES: 1.6.16
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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6. Find all solutions of the equation.

$$x^6 - 4096 = 0$$

- a. $4, 2 + 2\sqrt{3}i, -2 + 2\sqrt{3}i$
- b. $\pm 4, 2 \pm 2\sqrt{3}i, -2 \pm 2\sqrt{3}i$
- c. $\pm 4, 2 + 2\sqrt{3}i, -2 \pm 2\sqrt{3}i$
- d. $4, 2 \pm 2\sqrt{3}i, -2 \pm 2\sqrt{3}i$
- e. $\pm 4, 2 \pm 2\sqrt{3}i, -2 - 2\sqrt{3}i$

ANSWER: b
POINTS: 1
REFERENCES: 1.6.8
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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7. Find all solutions of the equation.

$$\sqrt{8x} = 4$$

- a. 4
- b. 6
- c. 3
- d. 2
- e. 5

ANSWER: d
POINTS: 1
REFERENCES: 1.6.35
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

Section 1.6 - Other Types of Equations

STUDENT ENTRY MODE: Basic

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8. Find all solutions of the equation.

$$6\sqrt{x} - 3 = 0$$

a. $\frac{5}{18}$

b. $\frac{2}{9}$

c. $\frac{7}{36}$

d. $\frac{11}{36}$

e. $\frac{1}{4}$

ANSWER: e

POINTS: 1

REFERENCES: 1.6.36

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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9. Find all solutions of the equation.

$$\sqrt{3-x} - 5 = 0$$

a. -19

b. -22

c. -18

d. -21

e. -20

ANSWER: b

POINTS: 1

REFERENCES: 1.6.38

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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10. Find all solutions of the equation.

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Section 1.6 - Other Types of Equations

$$\sqrt[3]{2x+11} + 5 = 0$$

- a. -66
- b. -65
- c. -68
- d. -67
- e. -64

ANSWER: c
POINTS: 1
REFERENCES: 1.6.39
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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11. Find all solutions of the equation.

$$\sqrt{x} - \sqrt{x-8} = 2$$

- a. 9
- b. 10
- c. 12
- d. 13
- e. 11

ANSWER: a
POINTS: 1
REFERENCES: 1.6.45
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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12. Find all solutions of the equation.

$$\sqrt{x+6} = \sqrt{12x+6}$$

- a. 3
- b. 4
- c. 0
- d. 1
- e. 2

Section 1.6 - Other Types of Equations

ANSWER: c
POINTS: 1
REFERENCES: 1.6.43
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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13. Find all solutions of the equation.

$$\sqrt{x+4} = \sqrt{x-4}$$

- a. 0
- b. 1
- c. 2
- d. No solution
- e. 3

ANSWER: d
POINTS: 1
REFERENCES: 1.6.44
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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14. Find all solutions of the equation.

$$4\sqrt{x+1} - \sqrt{2x+3} = 5$$

- a. 6
- b. 3
- c. 4
- d. 5
- e. 7

ANSWER: b
POINTS: 1
REFERENCES: 1.6.48
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.6 - Other Types of Equations

15. Find all solutions of the equation.

$$(x + 74)^{3/2} = 729$$

- a. 8
- b. 10
- c. 7
- d. 9
- e. 11

ANSWER: c
POINTS: 1
REFERENCES: 1.6.52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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16. Find all solutions of the equation.

$$(x^2 - 3)^{3/2} = 8$$

- a. $-\sqrt{7}$
- b. $\sqrt{7}$
- c. ± 7
- d. 7
- e. $\pm\sqrt{7}$

ANSWER: e
POINTS: 1
REFERENCES: 1.6.55
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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17. Find all solutions of the equation. Don't assume a complex-valued square root.

$$7x(x - 3)^{1/2} + 3(x - 3)^{3/2} = 0$$

- a. 4

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- b. 5
- c. 2
- d. 3
- e. 1

ANSWER: d
POINTS: 1
REFERENCES: 1.6.57
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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18. Find all solutions of the equation.

$$8\sqrt{x-3} - \sqrt{7x-3} = 3$$

- a. $-\sqrt{4}$
- b. 4
- c. ± 4
- d. $\pm\sqrt{4}$
- e. -4

ANSWER: b
POINTS: 1
REFERENCES: 1.6.50
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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19. Find all solutions of the equation.

$$\frac{x+14}{19} - \frac{x+14}{x+5} = 0$$

- a. ± 15
- b. ± 14
- c. ± 16
- d. ± 13
- e. ± 12

ANSWER: b
POINTS: 1

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REFERENCES: 1.6.70
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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20. Find the real solutions of the equation algebraically. Round your answer to three decimal places.

$$3.6x^4 - 2.8x^2 - 8.5 = 0$$

- a. ± 2.405
- b. ± 1.405
- c. ± 0.405
- d. ± 3.405
- e. ± 4.405

ANSWER: b
POINTS: 1
REFERENCES: 1.6.81
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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21. Select the equation which has the given solutions.

$-8, 4$

- a. $x^2 - 4x - 32 = 0$
- b. $x^2 + 32x - 4 = 0$
- c. $x^2 - 32x - 4 = 0$
- d. $x^2 + 4x + 32 = 0$
- e. $x^2 + 4x - 32 = 0$

ANSWER: e
POINTS: 1
REFERENCES: 1.6.89
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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22. Select the equation which has the given solutions.

0, 4, 8

a. $x^3 - 32x^2 + 12x = 0$

b. $x^3 - 12x^2 + 32x = 0$

c. $x^3 + 12x^2 + 32x = 0$

d. $x^3 - 12x^2 - 32x = 0$

e. $x^3 + 32x^2 + 12x = 0$

ANSWER: b

POINTS: 1

REFERENCES: 1.6.90

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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23. Select the equation which has the given solutions.

$8i, -8i$

a. $64x^2 = 0$

b. $x^2 + 64 = 0$

c. $\frac{x}{64} = 0$

d. $x^2 - 64 = 0$

e. $x^3 = 64$

ANSWER: b

POINTS: 1

REFERENCES: 1.6.95

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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24. Select the equation which has the given solutions.

$-7, 7, 7i, -7i$

Section 1.6 - Other Types of Equations

- a. $2401x^4 = 0$
- b. $x^4 - 2401 = 0$
- c. $x^6 = -2401$
- d. $\frac{x^2}{2401} = 0$
- e. $x^4 + 2401 = 0$

ANSWER: b
POINTS: 1
REFERENCES: 1.6.97
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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25. Select the equation which has the given solutions.

$2i, -2i, 4, -4$

- a. $x^4 - 64x^2 - 12 = 0$
- b. $x^4 - 64x^2 + 12 = 0$
- c. $x^4 - 12x^2 + 64 = 0$
- d. $x^4 - 12x^2 - 64 = 0$
- e. $x^4 + 12x^2 - 64 = 0$

ANSWER: d
POINTS: 1
REFERENCES: 1.6.98
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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26. An airline offers daily flights between Chicago and Denver. The total monthly cost C (in millions of dollars) of these flights is $C = \sqrt{0.2x + 1}$ where x is the number of passengers (in thousands). The total cost of the flights for June is 3.6 million dollars. How many passengers flew in June?

- a. 62,800 passengers
- b. 56,800 passengers

Section 1.6 - Other Types of Equations

- c. 61,800 passengers
- d. 57,800 passengers
- e. 59,800 passengers

ANSWER: e
POINTS: 1
REFERENCES: 1.6.108
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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27. The demand equation for a video game is modeled by $p = 40 - \sqrt{0.01x + 1}$ where x is the number of units demanded per day and p is the price per unit. Approximate the demand when the price is \$37.65. Round your answer to the nearest whole number.

- a. 502 units
- b. 352 units
- c. 552 units
- d. 452 units
- e. 402 units

ANSWER: d
POINTS: 1
REFERENCES: 1.6.109
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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28. The temperature (in degrees Fahrenheit) of saturated steam increases as pressure increases. This relationship is approximated by the model

$$T = 75.82 - 2.11x + 43.51\sqrt{x}, \quad 5 \leq x \leq 40$$

where x is the absolute pressure (in pounds per square inch).
Complete the table. Round your answers to two decimal places.

Absolute pressure, x	15	20	25	35	40
Temperature, T					

a.

x	15	20	25	35	40
T	212.68	266.60	240.62	259.38	228.20

b.

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x	15	20	25	35	40
T	212.68	228.20	240.62	259.38	266.60

c.

x	15	20	25	35	40
T	212.68	228.20	240.62	266.60	259.38

d.

x	15	20	25	35	40
T	212.68	240.62	228.20	259.38	266.60

e.

x	15	20	25	35	40
T	212.68	228.20	259.38	240.62	266.60

ANSWER:

b

POINTS:

1

REFERENCES:

1.6.107a

QUESTION TYPE:

Multi-Mode (Multiple choice)

HAS VARIABLES:

True

STUDENT ENTRY MODE:

Basic

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29. A meteorologist is positioned 100 feet from the point where a weather balloon is launched. When the balloon is at height h , the distance d (in feet) between the meteorologist and the balloon

is $d = \sqrt{100^2 + h^2}$.

Complete the table. Use the table to approximate the value of h when $d = 200$. Round your answers to two decimal places.

h	160	165	170	175	185
d					

a.

h	160	165	170	175	185
d	188.68	192.94	197.23	210.30	201.56

The height is between 170 and 175 feet when $d = 200$.

b.

h	160	165	170	175	185
d	188.68	197.23	192.94	201.56	210.30

The height is between 170 and 175 feet when $d = 200$.

c.

h	160	165	170	175	185
d	188.68	210.30	197.23	201.56	192.94

The height is between 170 and 175 feet when $d = 200$.

d.

h	160	165	170	175	185
d	188.68	192.94	201.56	197.23	210.30

Section 1.6 - Other Types of Equations

The height is between 170 and 175 feet when $d = 200$.

e.

h	160	165	170	175	185
d	188.68	192.94	197.23	201.56	210.30

The height is between 170 and 175 feet when $d = 200$.

ANSWER: e
POINTS: 1
REFERENCES: 1.6.112b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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30. You construct a cone with a base radius of 8 inches. The lateral surface area S of the cone can be represented by the equation

$$S = 8\pi\sqrt{64 + h^2}$$

where h is the height of the cone.

Find h algebraically when $S = 371$. Round the answer to one decimal place.

- a. 12.4
- b. 13.4
- c. 14.4
- d. 15.4
- e. 16.4

ANSWER: a
POINTS: 1
REFERENCES: 1.6.113c
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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31. Find all solutions of the equation $|x - 10| = x^2 - 10x$.

- a. -10, 1
- b. 1, -1
- c. 10, 3
- d. 10, -1
- e. -10, -1

ANSWER: d

Section 1.6 - Other Types of Equations

POINTS: 1
REFERENCES: 1.6.76
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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32. Consider an equation of the form $x + |x - a| = b$ where a and b are constants.
Which of the following values of a and b will satisfy the equation when the solution of the equation is $x = 13$?

- a. $a = 7, b = 22$
- b. $a = 4, b = 24$
- c. $a = 4, b = 25$
- d. $a = 6, b = 22$
- e. $a = 4, b = 22$

ANSWER: e
POINTS: 1
REFERENCES: 1.6.127
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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33. Find all real solutions of the equation $x^4 - 81 = 0$.

- a. $x = -3, x = 3$
- b. $x = 4$
- c. $x = -4, x = 4$
- d. $x = 3$
- e. $x = -3$

ANSWER: a
POINTS: 1
REFERENCES: 1.6.7
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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34. Find all solutions of the following equation.

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$$20x^3 - 28x^2 - 5x + 7 = 0$$

a. $x = -\frac{1}{5}, x = \frac{1}{5}, x = -\frac{7}{5}$

b. $x = -\frac{1}{5}, x = \frac{1}{5}, x = \frac{5}{7}$

c. $x = \frac{1}{2}, x = -\frac{1}{2}, x = -\frac{1}{5}$

d. $x = \frac{1}{2}, x = -\frac{1}{2}, x = \frac{5}{7}$

e. $x = \frac{1}{2}, x = -\frac{1}{2}, x = \frac{7}{5}$

ANSWER: e

POINTS: 1

REFERENCES: 1.6.11

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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35. Find all solutions of the equation $4x^4 - 257x^2 + 64 = 0$.

a. $x = \frac{1}{2}, x = 8$

b. $x = -\frac{1}{8}, x = \frac{1}{2}, x = -2, x = -8$

c. $x = -\frac{1}{8}, x = \frac{1}{8}, x = -8, x = 8$

d. $x = -\frac{1}{2}, x = \frac{1}{2}, x = -2, x = 2$

e. $x = -\frac{1}{2}, x = \frac{1}{2}, x = -8, x = 8$

ANSWER: e

POINTS: 1

REFERENCES: 1.6.12

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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Section 1.6 - Other Types of Equations

36. Find all solutions of the following equation.

$$\sqrt{17-x} - 7 = 0$$

- a. $x = 32$
- b. $x = -10$
- c. $x = 10$
- d. $x = -32$
- e. $x = 66$

ANSWER: d
POINTS: 1
REFERENCES: 1.6.38
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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37. Find all solutions of the following equation.

$$\sqrt[3]{1+5x} + 3 = 0$$

- a. $x = -28$
- b. $x = -\frac{28}{5}$
- c. $x = -\frac{27}{5}$
- d. $x = -\frac{4}{5}$
- e. $x = \frac{8}{5}$

ANSWER: b
POINTS: 1
REFERENCES: 1.6.40
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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38. Find all solutions of the following equation.

$$x - \sqrt{14x + 84} = -6$$

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- a. $x = 8, x = -6$
- b. $x = -8, x = 6$
- c. $x = -14, x = 14$
- d. $x = -6$
- e. $x = 8$

ANSWER: a
POINTS: 1
REFERENCES: 1.6.42
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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39. Find all solutions of the following equation.

$$\sqrt{-3x-8} = \sqrt{-3x-7}$$

- a. $x = \frac{1}{3}$
- b. $x = -7$
- c. No solution
- d. $x = -1$
- e. $x = -8$

ANSWER: c
POINTS: 1
REFERENCES: 1.6.43
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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40. Find all solutions of the following equation.

$$\sqrt[3]{(x+8)^2} - 9 = 0$$

- a. $x = 19, x = -19$
- b. No solution
- c. $x = 19$

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d. $x = \frac{27}{8}$

e. $x = 19, x = -35$

ANSWER: e
POINTS: 1
REFERENCES: 1.6.51
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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41. Find all solutions of the following equation.

$$\frac{-8}{-8x+5} - \frac{5}{-5x+8} = 1$$

a. No solution

b. $x = -1, x = -\frac{49}{40}$

c. $x = 1$

d. $x = 1, x = \frac{49}{40}$

e. $x = 1, x = \frac{129}{40}$

ANSWER: e
POINTS: 1
REFERENCES: 1.6.66
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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42. Find all solutions of $x^4 - 4x^3 + x - 4 = 0$.

a. $x = 1, x = \frac{-1 \pm \sqrt{3}i}{2}$

b. $x = 4, x = -1, x = \frac{1 \pm \sqrt{3}i}{2}$

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c. $x = -4, x = 1, x = \frac{1 \pm \sqrt{3}i}{2}$

d. $x = -4, x = 1, x = \frac{1 \pm \sqrt{2}i}{2}$

e. $x = 4, x = -1$

ANSWER: b
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 1-14
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.084 - Solve polynomial equation
TOPICS: 2.5
KEYWORDS: 2.5.4
NOTES: Skill
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43. Find all solutions of $\frac{1}{x^2} + \frac{6}{x} + 8 = 0$.

a. $x = -4, x = -2$

b. $x = -4, x = 2$

c. $x = -\frac{1}{4}, x = -\frac{1}{2}$

d. $x = \frac{1}{6}, x = -\frac{1}{2}$

e. $x = \frac{1}{6}, x = \frac{1}{2}$

ANSWER: c
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 1-14
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.085 - Solve equation involving fractions
TOPICS: 2.5
KEYWORDS: 2.5.11
NOTES: Skill
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44. Find all solutions of the following equation algebraically.

$$-8\left(\frac{v}{v-1}\right)^2 - 14\left(\frac{v}{v-1}\right) - 5 = 0$$

a. $v = -\frac{5}{4}, v = -\frac{1}{2}$

b. $v = 4, v = 1$

c. $v = -\frac{1}{9}, v = -\frac{5}{3}$

d. $v = \frac{5}{9}, v = \frac{1}{3}$

e. $v = -5, v = -2$

ANSWER: d

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 1-14

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: PREC.LARS.16.086 - Solve equation for all solutions

TOPICS: 2.5

KEYWORDS: 2.5.14

NOTES: Skill

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45. Find the x-intercepts of the graph of the equation $y = -15x^4 + 31x^3 - 14x^2$.

a. x-intercepts: $\left(-\frac{2}{3}, 0\right), \left(\frac{2}{3}, 0\right), \left(\frac{7}{5}, 0\right)$

b. x-intercepts: $\left(-\frac{7}{5}, 0\right), \left(\frac{2}{3}, 0\right), \left(\frac{7}{5}, 0\right)$

c. x-intercepts: $(0, 0), \left(\frac{2}{3}, 0\right), \left(-\frac{7}{5}, 0\right)$

d. x-intercepts: $(0, 0), \left(\frac{2}{3}, 0\right), \left(\frac{7}{5}, 0\right)$

Section 1.6 - Other Types of Equations

e. x-intercepts: $(0, 0)$, $\left(-\frac{2}{3}, 0\right)$, $\left(\frac{7}{5}, 0\right)$

ANSWER: d

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 15-18

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: PREC.LARS.16.087 - Solve for the x-intercepts of the graph of an equation

TOPICS: 2.5

KEYWORDS: 2.5.16c

NOTES: Skill

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46. In the following equation set $y = 0$ and solve.

$$y = x^4 - 34x^2 + 225$$

a. $x = -25, x = -9$

b. $x = 1, x = 15$

c. $x = \pm 3, x = \pm 5$

d. $x = -9, x = 15$

e. $x = \pm 15, x = \pm 5$

ANSWER: c

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 15-18

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: PREC.LARS.16.088 - Solve equation in quadratic form

TOPICS: 2.5

KEYWORDS: 2.5.18c

NOTES: Skill

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47. Find all solutions of the following equation algebraically.

$$\sqrt[3]{2x + 9} - 5 = 0$$

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a. $x = \frac{9}{2}$

b. $x = 58$

c. $x = \frac{1}{3}$

d. $x = -\frac{4}{9}$

e. $x = 6$

ANSWER: b

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 19-48

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: PREC.LARS.16.089 - Solve radical equations

TOPICS: 2.5

KEYWORDS: 2.5.24

NOTES: Skill

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48. Find all solutions of $\sqrt{x} - \sqrt{x-11} = 1$.

a. $x = 6$

b. $x = \sqrt{6}$

c. $x = 12$

d. $x = 36$

e. $x = -6$

ANSWER: d

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 19-48

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: PREC.LARS.16.089 - Solve radical equations

TOPICS: 2.5

KEYWORDS: 2.5.35

NOTES: Skill

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Section 1.6 - Other Types of Equations

49. Find all solutions of the following equation algebraically.

$$3\sqrt{x-8} - \sqrt{x-7} = 0$$

a. $x = \frac{17}{11}$

b. $x = \frac{65}{8}$

c. $x = -\frac{10}{11}$

d. $x = \frac{17}{2}$

e. $x = \frac{1}{8}$

ANSWER: b

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 19-48

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: PREC.LARS.16.089 - Solve radical equations

TOPICS: 2.5

KEYWORDS: 2.5.37

NOTES: Skill

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50. Find all solutions of the following equation algebraically.

$$13\sqrt{x-2} - \sqrt{5x-86} = 58$$

a. $x = -1$

b. $x = -6, x = 9$

c. $x = 8$

d. $x = 27$

e. $x = -1, x = 7$

ANSWER: d

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 19-48

Section 1.6 - Other Types of Equations

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.089 - Solve radical equations
TOPICS: 2.5
KEYWORDS: 2.5.38
NOTES: Skill
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51. Find all solutions of the following equation algebraically.

$$4m^{2/3} + 20m^{1/3} + 25 = 0$$

- a. $m = -\frac{5}{2}$
- b. $m = \frac{25}{4}$
- c. $m = -\frac{125}{8}$
- d. $m = -\frac{25}{4}$
- e. $m = \frac{5}{2}$

ANSWER: c
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 19-48
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.090 - Solve an equation with rational exponents
TOPICS: 2.5
KEYWORDS: 2.5.40
NOTES: Skill
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52. Find all solutions of the following equation algebraically.

$$(x - 2)^{2/3} = 9$$

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a. $x = \sqrt[3]{9} + 2$

b. $x = 11$

c. $x = \sqrt[3]{9} - 4$

d. $x = \frac{27}{4}$

e. $x = 29, x = -25$

ANSWER: e

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 19-48

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: PREC.LARS.16.090 - Solve an equation with rational exponents

TOPICS: 2.5

KEYWORDS: 2.5.44

NOTES: Skill

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53. Find all solutions of $(x^2 + 5)^{3/2} = 27$.

a. $x = -2, x = 2$

b. $x = \sqrt[3]{5}$

c. $x = -2$

d. $x = 3$

e. $x = -\sqrt[3]{5}, x = \sqrt[3]{5}$

ANSWER: a

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 19-48

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: PREC.LARS.16.090 - Solve an equation with rational exponents

TOPICS: 2.5

KEYWORDS: 2.5.46

NOTES: Skill

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Section 1.6 - Other Types of Equations

54. Find all solutions of the following equation algebraically.

$$25x^2(x+4)^{1/3} + 15x(x+4)^{4/3} = 0$$

a. $x = 0, x = -4$

b. $x = 0, x = -\frac{3}{2}, x = -4$

c. $x = 0, x = 4, x = \frac{4}{5}$

d. $x = -4, x = 4, x = \frac{5}{4}$

e. $x = -5, x = -1, x = \frac{4}{5}$

ANSWER: b

POINTS: 1

DIFFICULTY: Difficult

REFERENCES: 19-48

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: PREC.LARS.16.090 - Solve an equation with rational exponents

TOPICS: 2.5

KEYWORDS: 2.5.48

NOTES: Skill

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55. Find the x-intercepts of the graph of the equation $y = 4x + \sqrt{6 - 95x}$.

a. x-intercept: $(6, 0)$

b. x-intercepts: $(-6, 0), \left(\frac{1}{16}, 0\right)$

c. x-intercept: $(-6, 0)$

d. x-intercepts: $(7, 0), \left(\frac{1}{17}, 0\right)$

e. x-intercepts: $(7, 0), \left(\frac{1}{15}, 0\right)$

ANSWER: c

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 49-52

Section 1.6 - Other Types of Equations

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.087 - Solve for the x-intercepts of the graph of an equation
TOPICS: 2.5
KEYWORDS: 2.5.51c
NOTES: Skill
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56. Set $y = 0$ and solve the resulting equation.

$$y = 3\sqrt{x} - \frac{30}{\sqrt{x}} - 9$$

- a. $x = -2, x = 25$
- b. $x = 10$
- c. $x = -2, x = 10$
- d. $x = 25$
- e. $x = 3$

ANSWER: d
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 49-52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.089 - Solve radical equations
TOPICS: 2.5
KEYWORDS: 2.5.52b
NOTES: Skill
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57. Find all solutions of $-7x + 22 = \frac{3}{x}$.

- a. $x = -\frac{3}{7}, x = 3$
- b. $x = \frac{7}{3}, x = 7$
- c. $x = \frac{1}{7}, x = 3$

Section 1.6 - Other Types of Equations

d. $x = -\frac{7}{3}, x = -3$

e. $x = \frac{1}{3}, x = 7$

ANSWER: c
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 53-66
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.085 - Solve equation involving fractions
TOPICS: 2.5
KEYWORDS: 2.5.54
NOTES: Skill
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58. Find all solutions of the following equation.

$$\frac{24}{2x+3} + \frac{102}{5x-3} = 18$$

a. $x = 2$

b. $x = -\frac{11}{10}$

c. $x = -\frac{11}{10}, x = 2$

d. $x = -\frac{3}{10}, x = 8$

e. $x = 8$

ANSWER: c
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 53-66
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.091 - Solve a rational equation
TOPICS: 2.5
KEYWORDS: 2.5.56
NOTES: Skill
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Section 1.6 - Other Types of Equations

59. Find all solutions of the following equation.

$$\frac{x}{x^2-9} + \frac{7}{x+3} = 1$$

- a. $x = -3, x = 3$
- b. $x = \frac{7}{9}, x = \frac{3}{7}$
- c. $x = 2, x = 3$
- d. $x = 2, x = 6$
- e. $x = 6$

ANSWER: d
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 53-66
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.085 - Solve equation involving fractions
TOPICS: 2.5
KEYWORDS: 2.5.59
NOTES: Skill
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60. Find all solutions of $|7x - 4| = 5$.

- a. $x = \frac{1}{7}, x = -\frac{9}{7}$
- b. $x = \frac{9}{7}, x = -\frac{1}{7}$
- c. $x = \frac{9}{7}$
- d. $x = \frac{3}{5}, x = -\frac{1}{2}$
- e. $x = \frac{1}{7}$

ANSWER: b
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 53-66

Section 1.6 - Other Types of Equations

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.092 - Solve absolute value equations
TOPICS: 2.5
KEYWORDS: 2.5.62
NOTES: Skill
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61. Find all solutions of the following equation.

$$|x - 6| = x^2 - 6x$$

- a. $x = 0, x = 1$
- b. $x = 0, x = 6$
- c. $x = -1, x = 6$
- d. $x = -1, x = 0$
- e. $x = -1$

ANSWER: c
POINTS: 1
DIFFICULTY: Difficult
REFERENCES: 53-66
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.093 - Solve equation involving absolute value
TOPICS: 2.5
KEYWORDS: 2.5.64
NOTES: Skill
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62. Find all solutions of the following equation.

$$x - 4 = |x^2 - 4x|$$

- a. $x = 1, x = 4$
- b. $x = -4, x = 4$
- c. $x = -4, x = 0$
- d. $x = 4$
- e. $x = 0, x = 1$

ANSWER: d

Section 1.6 - Other Types of Equations

POINTS:	1
DIFFICULTY:	Difficult
REFERENCES:	53-66
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
LEARNING OBJECTIVES:	PREC.LARS.16.093 - Solve equation involving absolute value
TOPICS:	2.5
KEYWORDS:	2.5.66
NOTES:	Skill
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63. Set $y = 0$ and solve the resulting equation.

$$y = x + 10 + \frac{16}{x + 2}$$

- a. $x = -10$
- b. $x = -10, x = 10$
- c. $x = -6, x = 6$
- d. $x = -6$
- e. $x = 10$

ANSWER:	d
POINTS:	1
DIFFICULTY:	Medium
REFERENCES:	67-70
QUESTION TYPE:	Multi-Mode (Multiple choice)
HAS VARIABLES:	True
STUDENT ENTRY MODE:	Basic
LEARNING OBJECTIVES:	PREC.LARS.16.094 - Solve equation involving rational expression
TOPICS:	2.5
KEYWORDS:	2.5.68c
NOTES:	Skill
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64. Find the x-intercepts of the graph of the equation $y = |8x + 9| - 4$.

- a. x-intercepts: $\left(\frac{5}{8}, 0\right), \left(\frac{13}{8}, 0\right)$

Section 1.6 - Other Types of Equations

b. x-intercepts: $\left(-\frac{5}{8}, 0\right), \left(\frac{13}{8}, 0\right)$

c. x-intercepts: $\left(-\frac{5}{8}, 0\right), \left(\frac{5}{8}, 0\right)$

d. x-intercepts: $\left(\frac{13}{8}, 0\right), \left(-\frac{13}{8}, 0\right)$

e. x-intercepts: $\left(-\frac{5}{8}, 0\right), \left(-\frac{13}{8}, 0\right)$

ANSWER: e

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 67-70

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: PREC.LARS.16.087 - Solve for the x-intercepts of the graph of an equation

TOPICS: 2.5

KEYWORDS: 2.5.70c

NOTES: Skill

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65. Find an equation that has $x = i, -i, 4$, and 2 as solutions.

a. $x^4 - 6x^3 + 9x^2 - 6x + 8 = 0$

b. $x^4 - 6x^3 + 7x^2 - 6x + 8 = 0$

c. $x^4 - 2x^3 + 9x^2 - 6x + 8 = 0$

d. $x^4 - 2x^3 + 7x^2 - 6x + 8 = 0$

e. $x^4 - 6x^3 + 9x^2 - 2x + 8 = 0$

ANSWER: a

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 87-92

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

LEARNING OBJECTIVES: PREC.LARS.16.095 - Write a possible equation given roots

TOPICS: 2.5

KEYWORDS: 2.5.92

Section 1.6 - Other Types of Equations

NOTES: Skill
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66. Solve the equation.

$$2x + 1 = 6x - 31$$

- a. $x = 8$
- b. $x = 10$
- c. $x = 11$
- d. $x = 9$
- e. $x = 7$

ANSWER: a
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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67. Solve the equation.

$$\frac{x}{5} - \frac{x}{15} = 10$$

- a. $x = 150$
- b. $x = 25$
- c. $x = 8$
- d. $x = 15$
- e. $x = 75$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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68. Solve the following equation (if possible).

$$\frac{1}{x-5} + \frac{1}{x+5} = \frac{18}{x^2-25}$$

- a. $x = 45$
- b. $x = 9$
- c. $x = 18$

Section 1.6 - Other Types of Equations

d. $x = 4.5$

e. No solution

ANSWER: b

POINTS: 1

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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69. Solve the following equation (if possible).

$$\frac{2}{x-3} + \frac{3}{x+5} = \frac{16}{x^2 + 2x - 15}$$

a. $x = 3$

b. $x = -5$

c. $x = -3$

d. $x = 5$

e. No solution

ANSWER: e

POINTS: 1

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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70. Determine any point(s) of intersection of the following equations algebraically.

$$4x = y - 3$$

$$y - 7x = -12$$

a. (6, 27)

b. (3, 15)

c. (4, 19)

d. (5, 23)

e. (7, 31)

ANSWER: d

POINTS: 1

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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71. Determine any point(s) of intersection of the following equations algebraically.

$$30 = 23x - y$$

$$-x^2 + y = 12x$$

- a. (7, 133)
(6, 108)
- b. (3, 39)
(2, 16)
- c. (5, 85)
(4, 62)
- d. (4, 62)
(3, 39)
- e. (6, 108)
(5, 85)

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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72. Find the value of x that solves the equation.

$$\frac{\sqrt{x+7}}{6} + 5 = 6$$

- a. $x = 13$
- b. $x = 22$
- c. $x = 29$
- d. $x = -1$
- e. $x = 43$

ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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73. Find the values of x that solve the equation.

$$(11x - 5)^2 = 16$$

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a. $x = \frac{9}{11}, x = -\frac{9}{11}$

b. $x = \frac{9}{11}, x = \frac{1}{11}$

c. $x = 9, x = -9$

d. $x = -\frac{1}{11}, x = -\frac{9}{11}$

e. $x = -\frac{1}{11}, x = \frac{1}{11}$

ANSWER: b

POINTS: 1

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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74. Find the values of x that solve the equation.

$$|11x + 7| = 5$$

a. $x = \frac{12}{11}, x = -\frac{12}{11}$

b. $x = \frac{12}{11}, x = \frac{2}{11}$

c. $x = 12, x = -12$

d. $x = -\frac{2}{11}, x = -\frac{12}{11}$

e. $x = -\frac{2}{11}, x = \frac{2}{11}$

ANSWER: d

POINTS: 1

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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75. Find all solutions of the equation.

$$x^3 + 3x^2 - 10x - 30 = 0$$

a. $x = \sqrt{10}, x = -\sqrt{10}, x = 3$

Section 1.6 - Other Types of Equations

b. $x = \sqrt{7}, x = -\sqrt{7}, x = -3$

c. $x = \sqrt{10}, x = -\sqrt{7}, x = 3$

d. $x = \sqrt{10}, x = -\sqrt{10}, x = -3$

e. $x = \sqrt{7}, x = -\sqrt{7}, x = 3$

ANSWER: d

POINTS: 1

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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76. Find all solutions of the equation.

$$x^4 - 10x^2 + 21 = 0$$

a. $x = \pm\sqrt{2}, x = \pm\sqrt{6}$

b. $x = \pm\sqrt{3}, x = \pm\sqrt{2}$

c. $x = \pm\sqrt{3}, x = \pm\sqrt{7}$

d. $x = \pm\sqrt{3}, x = \pm\sqrt{6}$

e. $x = \pm\sqrt{7}, x = \pm\sqrt{2}$

ANSWER: c

POINTS: 1

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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77. Find all solutions of the equation.

$$\sqrt{x+10} - 3x = 2$$

Round all answers to the nearest hundredth.

a. $x = -1.84, x = 0.62$

b. $x = -1.63, x = 0.41$

c. $x = 0.41, x = 0.62$

d. $x = 0.41$

e. $x = 0.62$

Section 1.6 - Other Types of Equations

ANSWER: d
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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78. Find all solutions of the equation.

$$-\frac{1}{x} - \frac{20}{x^2} = -1$$

- a. $x = -5, x = -4$
- b. $x = 5, x = -4$
- c. $x = -5, x = 4$
- d. $x = 5, x = 4$
- e. None of the above

ANSWER: b
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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79. The population of a small town can be modelled by the equation $P = 31.2t + 12,433$ with $0 \leq t \leq 40$, where $t = 0$ corresponds to 1970. According to this model, when did the population reach 12,901?

- a. 1988
- b. 1986
- c. 1985
- d. 1984
- e. 1987

ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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80. The average salary (in thousands of dollars) at a certain company for the first ten years of its existence can be approximated by the model $S = 0.2t^2 + 2.1t + 32.5$, $0 \leq t \leq 10$. How many years did it take for the average salary to

Section 1.6 - Other Types of Equations

reach \$37,500? Round the answer to the nearest hundredth of a year.

- a. 427.37
- b. 427.30
- c. 427.48
- d. 427.61
- e. 427.96

ANSWER: d

POINTS: 1

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

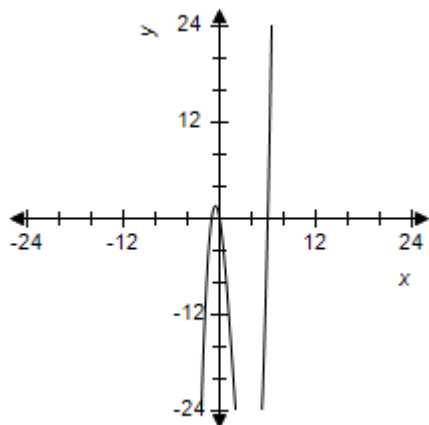
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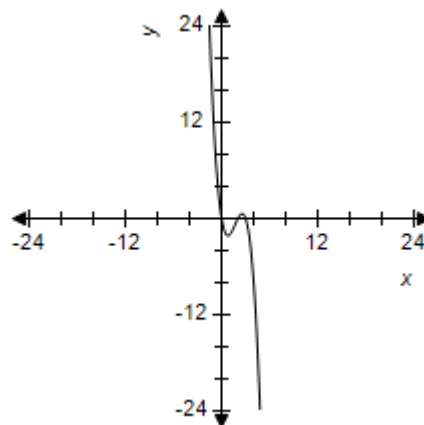
81. Use a graphing utility to graph the equation.

$$y = x^3 - 5x^2 - 6x$$

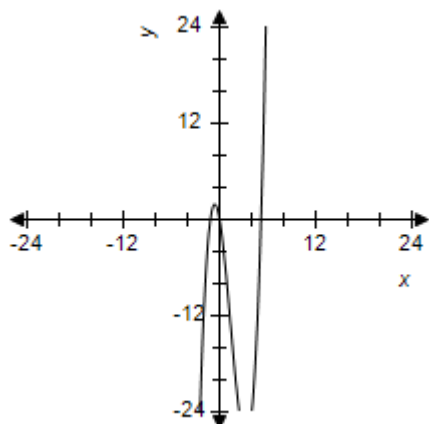
a.



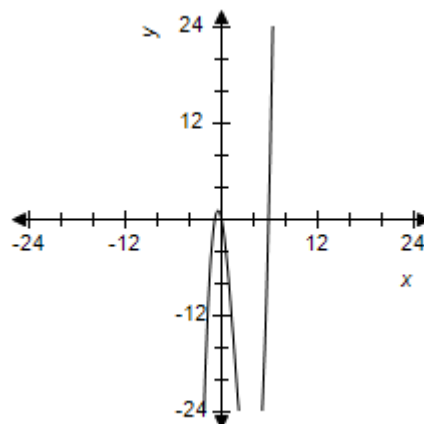
b.



c.

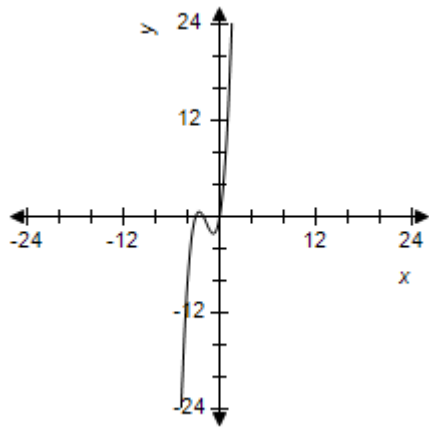


d.



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e.

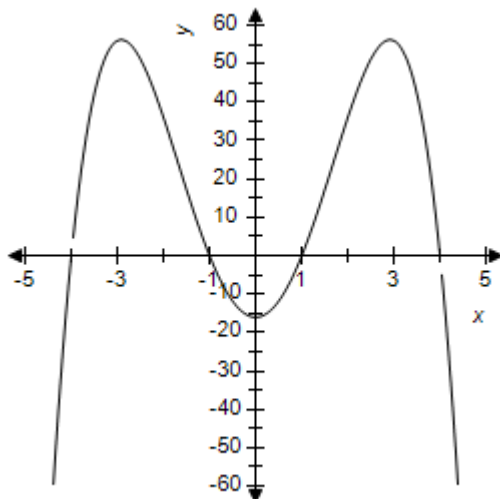


ANSWER: a
 POINTS: 1
 REFERENCES: 1.6.31
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
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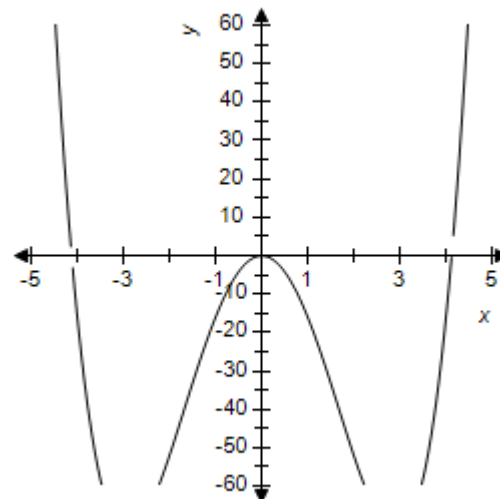
82. Use a graphing utility to graph the equation.

$$y = x^4 - 17x^2 + 16$$

a.



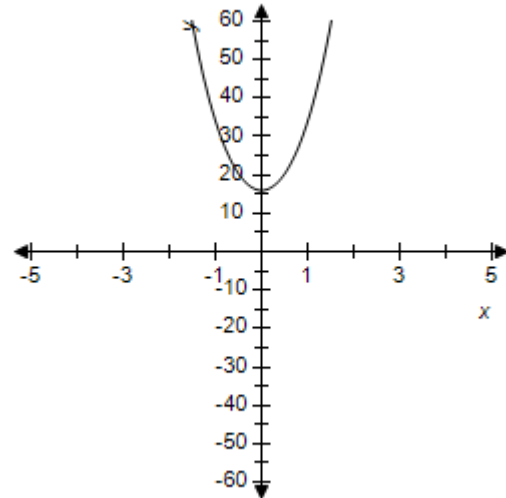
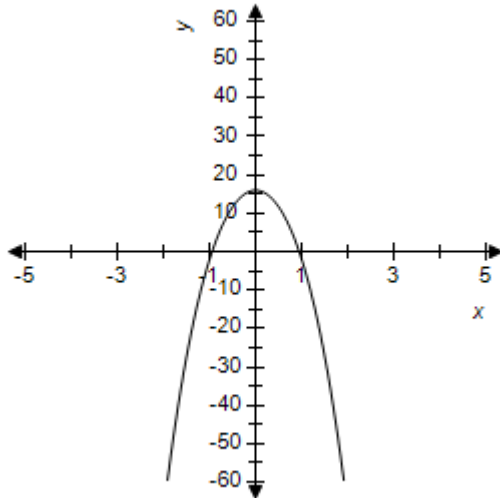
b.



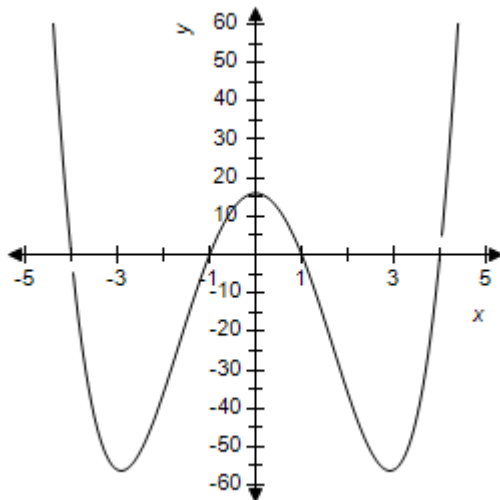
c.

d.

Section 1.6 - Other Types of Equations



e.



ANSWER: e
 POINTS: 1
 REFERENCES: 1.6.33
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
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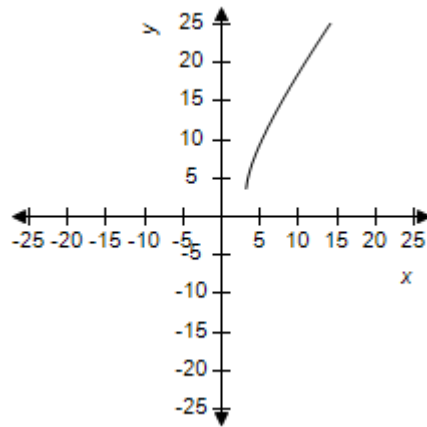
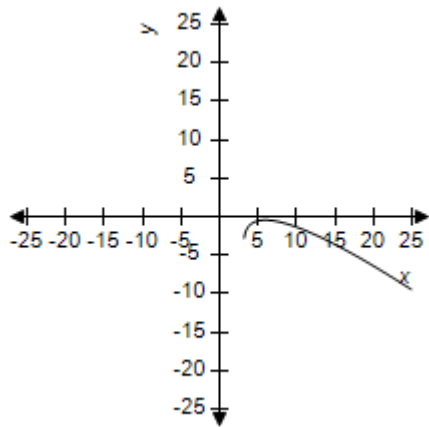
83. Use a graphing utility to graph the equation.

$$y = \sqrt{11x - 35} - x$$

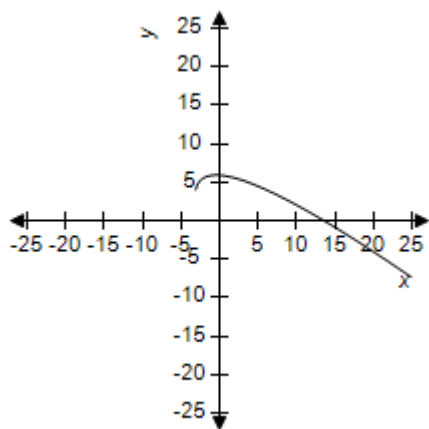
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b.

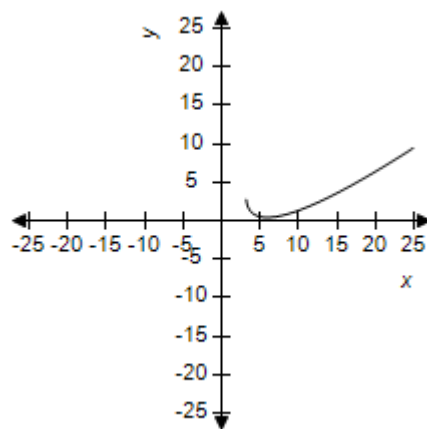
Section 1.6 - Other Types of Equations



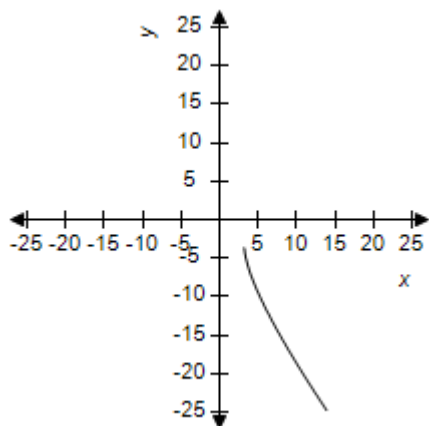
c.



d.



e.



ANSWER: a
 POINTS: 1
 REFERENCES: 1.6.59
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
 DATE CREATED: 6/10/2014 4:16 PM

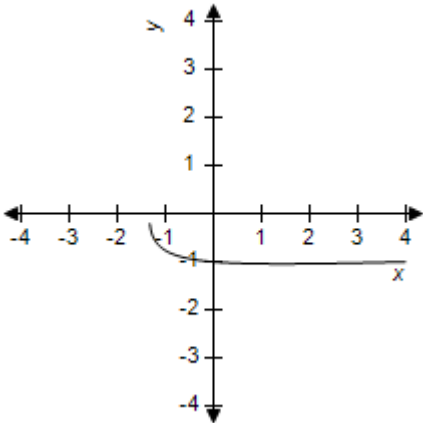
Section 1.6 - Other Types of Equations

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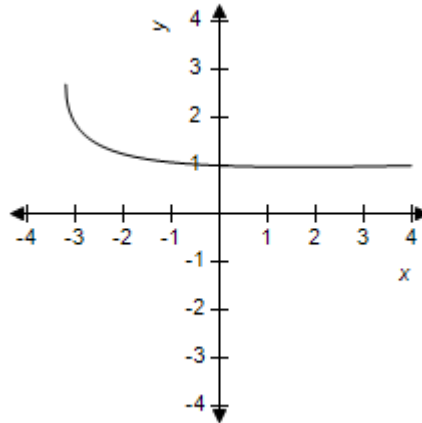
84. Use a graphing utility to graph the equation.

$$y = \sqrt{4x+9} - \sqrt{3x+4} - 2$$

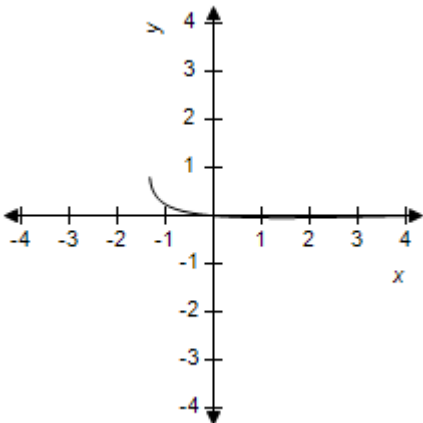
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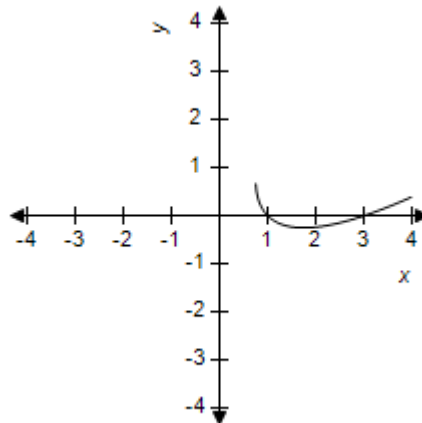
b.



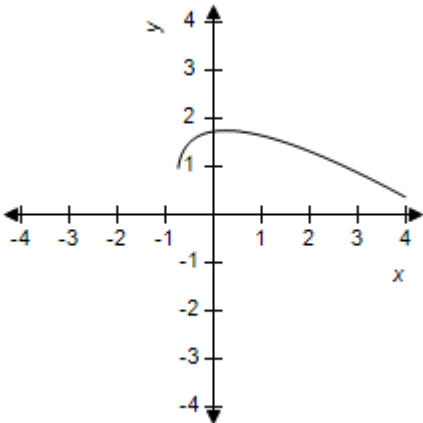
c.



d.



e.



ANSWER: a

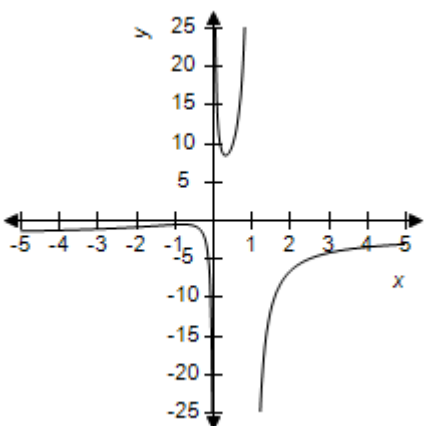
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POINTS: 1
REFERENCES: 1.6.61
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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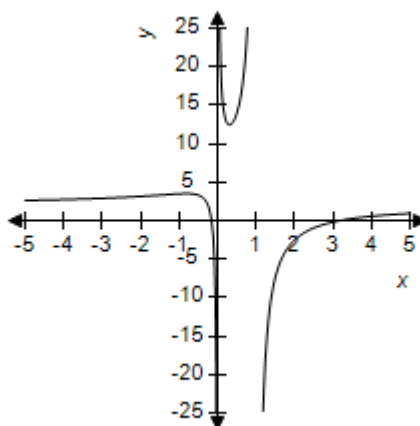
85. Use a graphing utility to graph the equation.

$$y = \frac{1}{x} - \frac{5}{x-1} - 2$$

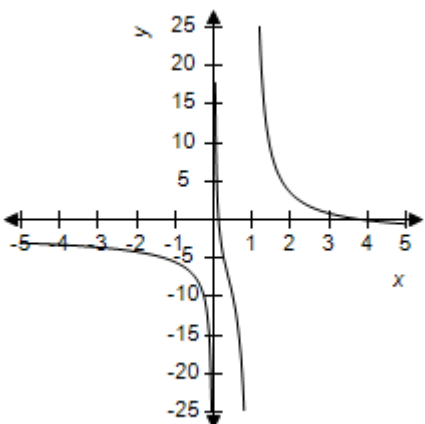
a.



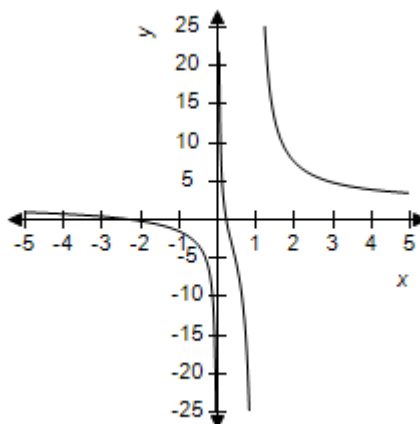
b.



c.

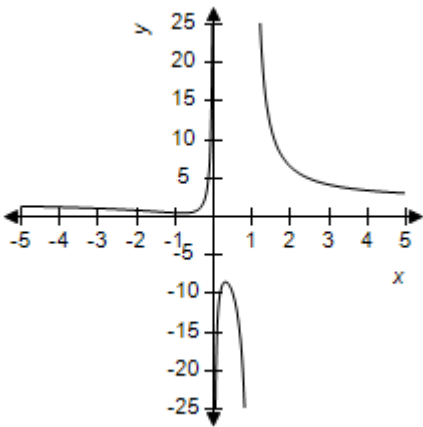


d.



e.

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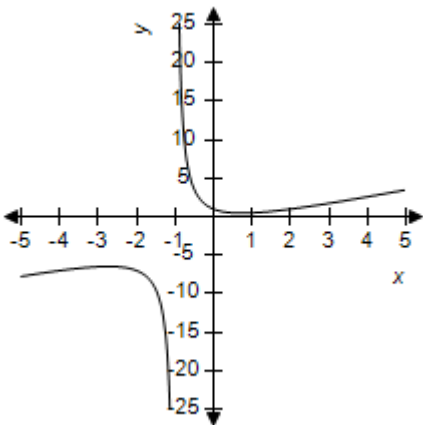


ANSWER: a
 POINTS: 1
 REFERENCES: 1.6.77
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
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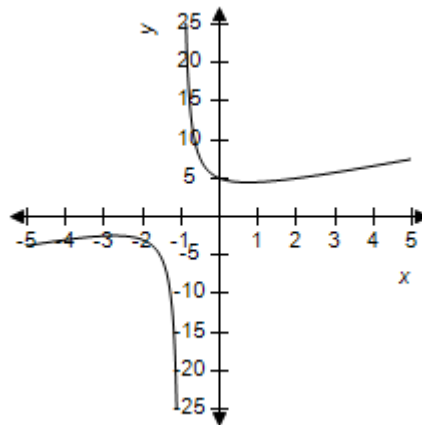
86. Use a graphing utility to graph the equation.

$$y = x + \frac{3}{x+1} - 2$$

a.



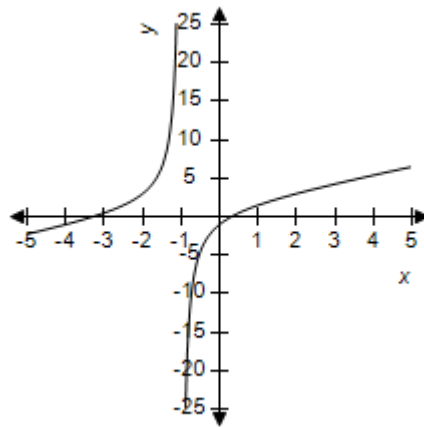
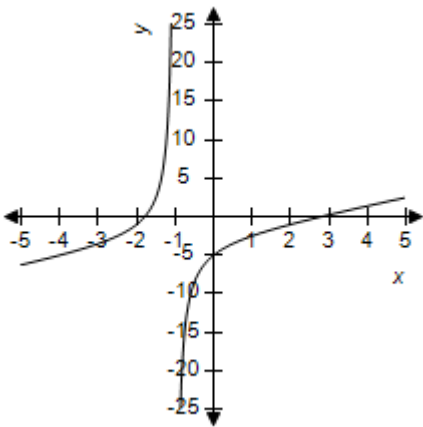
b.



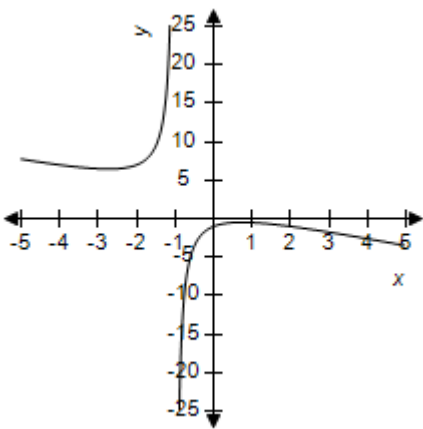
c.

d.

Section 1.6 - Other Types of Equations



e.



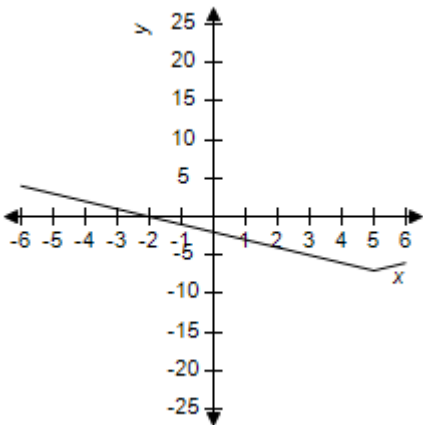
ANSWER: a
POINTS: 1
REFERENCES: 1.6.78
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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87. Use a graphing utility to graph the equation.

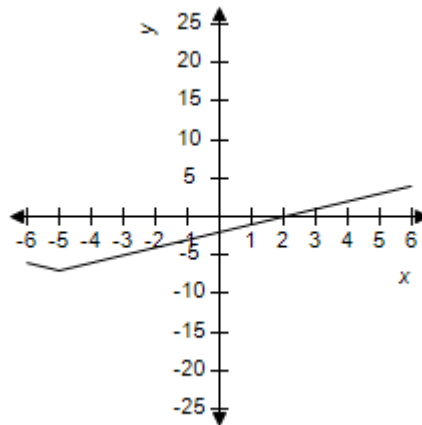
$$y = |x - 5| - 7$$

Section 1.6 - Other Types of Equations

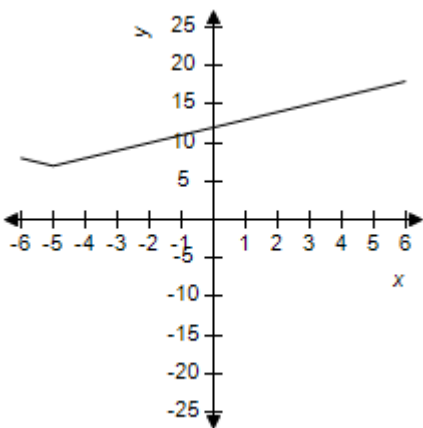
a.



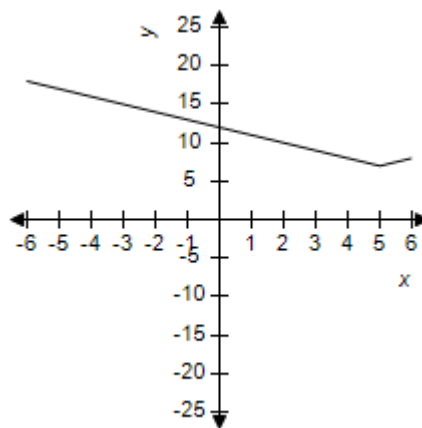
b.



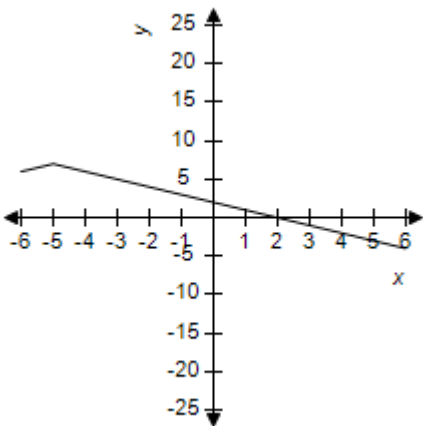
c.



d.



e.



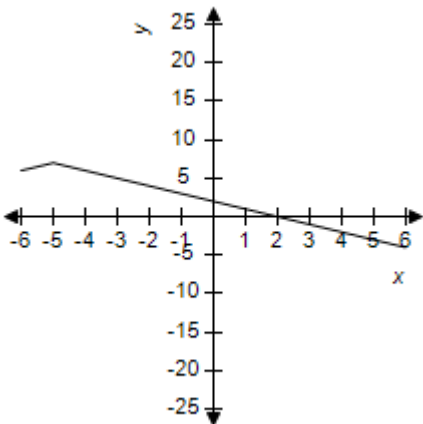
ANSWER: a
 POINTS: 1
 REFERENCES: 1.6.80
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
 DATE CREATED: 6/10/2014 4:16 PM
 DATE MODIFIED: 5/13/2021 6:54 AM

Section 1.6 - Other Types of Equations

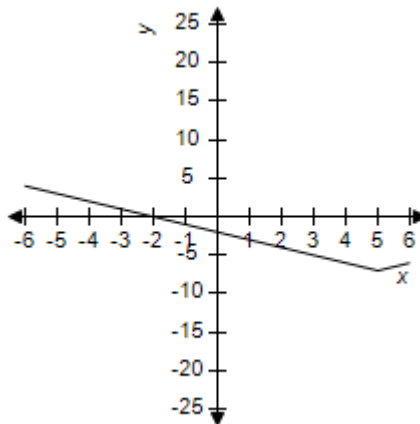
88. Use a graphing utility to graph the equation.

$$y = |x + 5| - 7$$

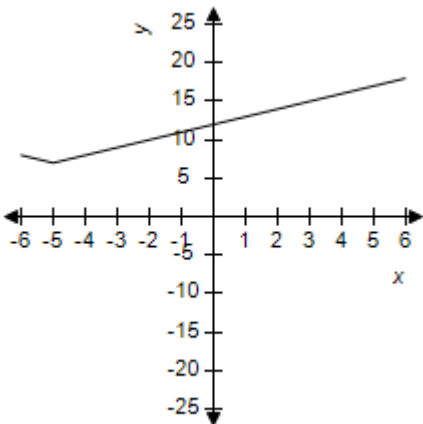
a.



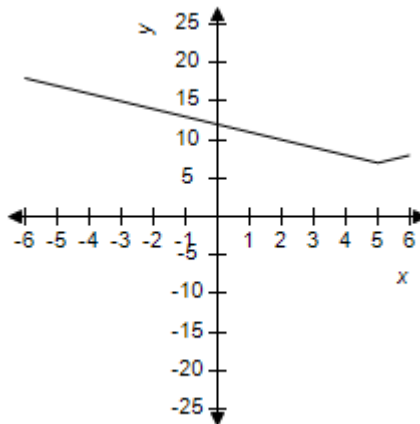
b.



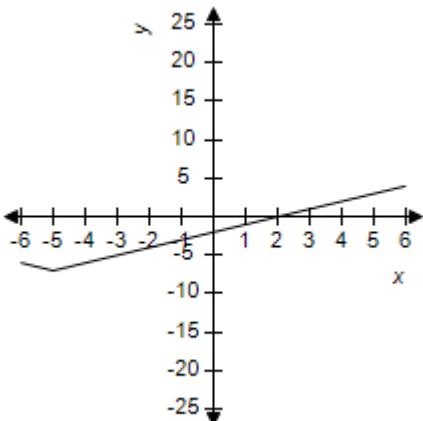
c.



d.



e.



ANSWER: e

POINTS: 1

REFERENCES: 1.6.79

QUESTION TYPE: Multi-Mode (Multiple choice)

Section 1.6 - Other Types of Equations

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

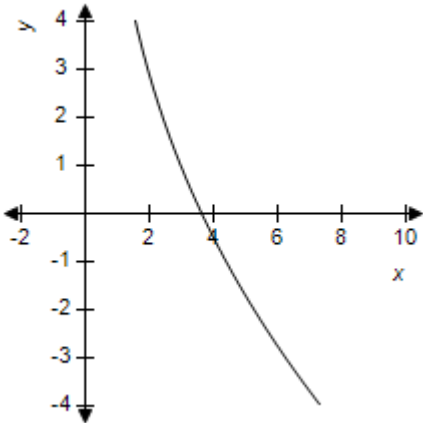
DATE CREATED: 6/10/2014 4:16 PM

DATE MODIFIED: 5/13/2021 9:04 AM

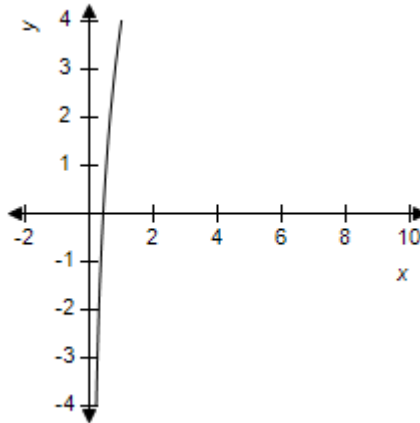
89. Select the correct graph of the equation.

$$y = 4\sqrt{x} - \frac{5}{\sqrt{x}} - 5$$

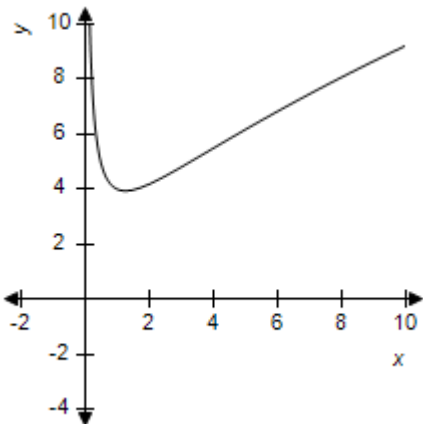
a.



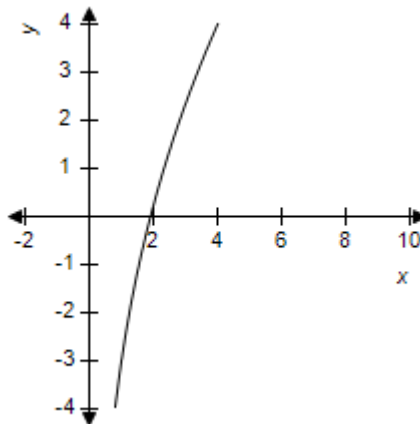
b.



c.

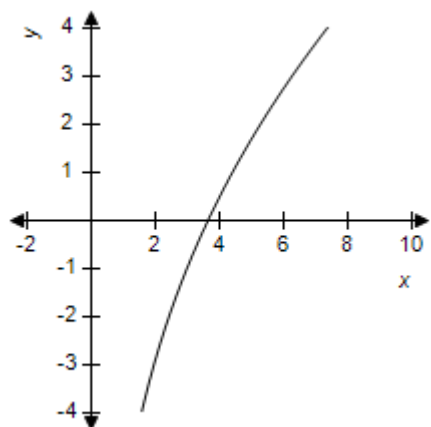


d.



Section 1.6 - Other Types of Equations

e.



ANSWER: e
POINTS: 1
REFERENCES: 1.6.62
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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90. Use a graphing utility to graph the following equation and approximate any x -intercepts of the graph. Round the answer to the nearest whole number.

$$y = 2\sqrt{x} - \frac{7.2}{\sqrt{x}} + 2.1$$

- a. $x \approx -3, x \approx 6$
- b. $x \approx 5$
- c. $x \approx -3, x \approx 5$
- d. $x \approx 2$
- e. $x \approx 3$

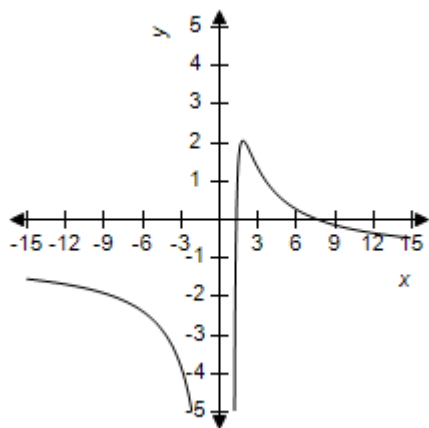
ANSWER: d
POINTS: 1
REFERENCES: 49-52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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91. Graph the equation and approximate the x -intercepts to the nearest hundredth.

$$y = \frac{10}{x} - \frac{2}{x-1} - 1$$

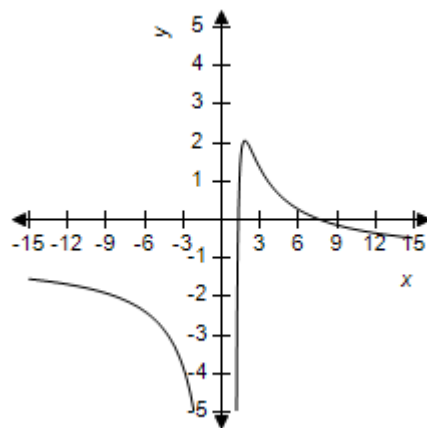
Section 1.6 - Other Types of Equations

a.



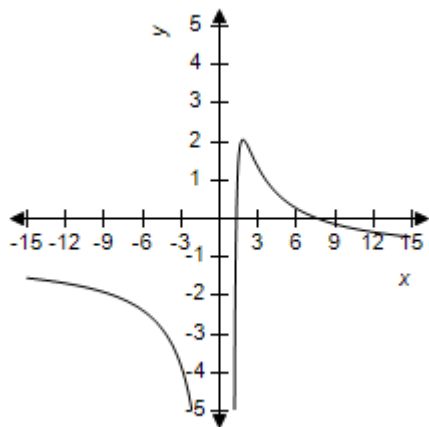
(7.51, 0), (1.49, 0)

b.



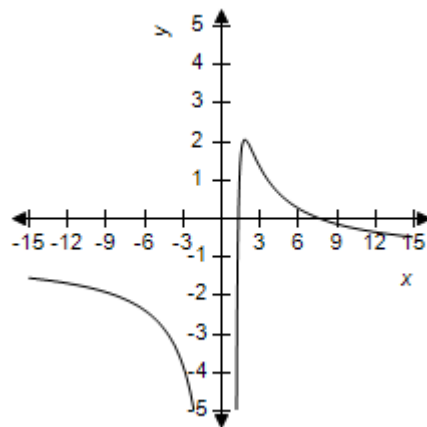
(7.23, 0), (1.77, 0)

c.



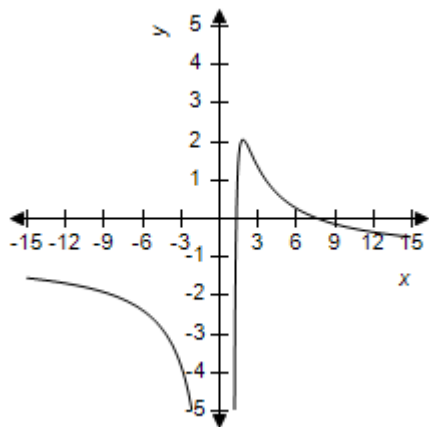
(7.83, 0), (1.17, 0)

d.



(7.70, 0), (1.30, 0)

e.



(7.35, 0), (1.65, 0)

ANSWER:

d

POINTS:

1

QUESTION TYPE:

Multi-Mode (Multiple choice)

HAS VARIABLES:

True

Section 1.6 - Other Types of Equations

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:16 PM

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92. Find the x - and y -intercepts of the graph of the equation.

$$-\frac{4x}{5} - 1 + 18y = 0$$

- a. x -intercept: $(\frac{5}{4}, 0)$; y -intercept: $(0, -\frac{1}{18})$
- b. x -intercept: $(-\frac{4}{5}, 0)$; y -intercept: $(0, \frac{8}{11})$
- c. x -intercept: $(\frac{4}{5}, 0)$; y -intercept: $(0, \frac{10}{7})$
- d. x -intercept: $(-\frac{5}{4}, 0)$; y -intercept: $(0, \frac{1}{18})$
- e. x -intercept: $(\frac{10}{7}, 0)$; y -intercept: $(0, \frac{5}{4})$

ANSWER: d

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 9/23/2014 6:43 AM

DATE MODIFIED: 5/13/2021 9:36 AM

93. Which of the following is a zero of the given function?

$$f(x) = \frac{x+8}{5} - \frac{x+8}{9} - 6$$

$$x = -\frac{79}{2}, x = \frac{151}{2}, x = 17, x = \frac{119}{2}$$

- a. $x = -\frac{79}{2}$
- b. $x = \frac{151}{2}$
- c. $x = 17$
- d. $x = \frac{119}{2}$
- e. None of these

ANSWER: d

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 9/23/2014 7:47 AM

DATE MODIFIED: 9/23/2014 8:16 AM

Section 1.6 - Other Types of Equations

94. Which of the following is a zero of the given function?

$$f(x) = x + 8 + \frac{15}{x}$$

$$x = 3, x = -5, x = -2, x = 8$$

- a. $x = 3$
- b. $x = -5$
- c. $x = -2$
- d. $x = 8$
- e. none of these

ANSWER: b

POINTS: 1

REFERENCES: 15-20

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:16 PM

DATE MODIFIED: 9/23/2014 8:31 AM

95. Solve the following equation.

$$10(x + 4) = -10(x + 9) + 210$$

- a. $x = \frac{43}{4}$
- b. $x = 8$
- c. $x = 4$
- d. $x = -4$
- e. $x = 17$

ANSWER: c

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 9/23/2014 8:36 AM

DATE MODIFIED: 9/23/2014 8:52 AM

96. Solve for x rounding your answer to the nearest thousandth.

$$2.657 + 1.204(4.193x + 0.162) = 6.444x - 3$$

- a. -0.106
- b. 4.193
- c. 0.386
- d. -0.509
- e. 0.047

ANSWER: b

POINTS: 1

Section 1.6 - Other Types of Equations

REFERENCES: 21-34
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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97. Solve the following equation.

$$\frac{x+9}{3} = \frac{x-7}{7}$$

- a. -4
- b. -7
- c. -3
- d. -21
- e. $\frac{21}{5}$

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/23/2014 9:10 AM
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98. Solve the following equation.

$$\frac{x+4}{4} - \frac{x-2}{7} = 4$$

- a. $\frac{92}{3}$
- b. $\frac{106}{11}$
- c. $-\frac{32}{3}$
- d. $-\frac{32}{11}$
- e. $\frac{76}{3}$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 9/23/2014 9:33 AM
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Section 1.6 - Other Types of Equations

99. Solve the following equation.

$$(x + 20)^2 - 12(x - 12) = (x + 20)(x - 12)$$

a. $-\frac{196}{5}$

b. -8

c. $-\frac{124}{5}$

d. $\frac{196}{3}$

e. $-\frac{4}{3}$

ANSWER: a

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

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100. Determine any point(s) of intersection between the following equations.

$$y = 3 - x$$

$$y = \frac{6}{5} - \frac{9}{5}x$$

a. $(-\frac{9}{14}, \frac{3}{2})$

b. $(\frac{3}{4}, \frac{9}{4})$

c. $(-\frac{9}{4}, \frac{21}{4})$

d. $(\frac{15}{4}, -\frac{3}{4})$

e. $(\frac{3}{2}, \frac{21}{5})$

ANSWER: c

POINTS: 1

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

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101. Determine any point(s) of intersection between the following equations.

$$y = -x^2 - x + 4$$

$$y = -x^2 - 2x + 2$$

Section 1.6 - Other Types of Equations

- a. $(2, -2)$
- b. $(-4, -8), (2, -2)$
- c. $(-1, 4), (4, -16)$
- d. $(-2, 2)$
- e. $(4, -16)$

ANSWER: d
POINTS: 1
REFERENCES: 57-64
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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Section 1.7 - Linear Inequalities in One Variable

1. Select an inequality that represents the interval $[0, 6)$.

- a. $0 \leq x < 6$
- b. $0 \leq x \leq 6$
- c. $0 < x < 6$
- d. $0 < x \leq 6$
- e. $-6 \leq x < 0$

ANSWER: a

POINTS: 1

REFERENCES: 1.7.7

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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2. Select an inequality that represents the interval $(-8, 6)$.

- a. $-8 \leq x < 6$
- b. $-8 \leq x \leq 6$
- c. $-8 < x \leq 6$
- d. $8 < x < 6$
- e. $-8 < x < 6$

ANSWER: e

POINTS: 1

REFERENCES: 1.7.8

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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3. Select an inequality that represents the interval $[-3, 2]$.

- a. $-3 < x < 2$
- b. $-3 \leq x < 2$
- c. $-3 < x \leq 2$
- d. $3 \leq x \leq 2$
- e. $-3 \leq x \leq 2$

ANSWER: e

POINTS: 1

REFERENCES: 1.7.9

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

Section 1.7 - Linear Inequalities in One Variable

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4. Select an inequality that represents the interval $[-4, \infty)$.

a. $x \leq -4$

b. $x < -4$

c. $x > -4$

d. $x \geq -4$

e. $x \geq 4$

ANSWER: d

POINTS: 1

REFERENCES: 1.7.12

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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5. Determine whether $x = 9$ is in the solution set of the inequality $9x - 10 > 0$.

a. Yes

b. No

ANSWER: a

POINTS: 1

REFERENCES: 1.7.23

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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6. Determine whether $x = 7$ is in the solution set of the inequality $0 < \frac{x-4}{6} < 2$.

a. Yes

b. No

ANSWER: a

POINTS: 1

REFERENCES: 1.7.25

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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Section 1.7 - Linear Inequalities in One Variable

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7. Determine whether $x = 2$ is in the solution set of the inequality $|x - 12| \geq 1$.

- a. No
- b. Yes

ANSWER: b
POINTS: 1
REFERENCES: 1.7.27
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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8. Solve the inequality.

$$10x < -90$$

- a. $x > -9$
- b. $x < 9$
- c. $x > 9$
- d. $x < -9$
- e. No solution

ANSWER: d
POINTS: 1
REFERENCES: 1.7.30
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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9. Solve the inequality.

$$x + 4 \leq 16$$

- a. $x \geq -12$
- b. $x \leq -12$
- c. $x \geq 12$
- d. $x \leq 12$
- e. $x \geq 20$

ANSWER: d
POINTS: 1
REFERENCES: 1.7.34

Section 1.7 - Linear Inequalities in One Variable

QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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10. Solve the inequality.

$$\frac{1}{2}x - 4 \leq x - 5$$

- a. $x \leq 2$
- b. $x \leq -2$
- c. $x \geq -2$
- d. $x \geq 2$
- e. No solution

ANSWER: d
POINTS: 1
REFERENCES: 1.7.41
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:16 PM
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11. Solve the inequality.

$$5x - 1 < \frac{3}{4}(16x - 2)$$

- a. $x < \frac{1}{14}$
- b. $x < 14$
- c. $x > 14$
- d. $x > \frac{1}{5}$
- e. $x > \frac{1}{14}$

ANSWER: e
POINTS: 1
REFERENCES: 1.7.44
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

Section 1.7 - Linear Inequalities in One Variable

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12. Solve the inequality.

$$13 - 1.3x < -5.2$$

a. $x > -14$

b. $x > 14$

c. $x < 14$

d. $x < -14$

e. No solution

ANSWER: b

POINTS: 1

REFERENCES: 1.7.46

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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13. Solve the inequality.

$$-12 \leq -(3x + 3) < 24$$

a. $-9 \leq x \leq 3$

b. $-9 < x < 3$

c. $3 \leq x < 9$

d. $-9 < x \leq 3$

e. $-9 \leq x < 3$

ANSWER: d

POINTS: 1

REFERENCES: 1.7.48

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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14. Solve the inequality.

$$0 \leq \frac{x+3}{2} < 9$$

a. $-3 \leq x < 15$

b. $3 \leq x < 3$

Section 1.7 - Linear Inequalities in One Variable

c. $-15 \leq x < -3$

d. $-3 < x \leq 15$

e. $-15 \leq x < 3$

ANSWER: a
POINTS: 1
REFERENCES: 1.7.52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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15. Solve the inequality.

$$1.8 \leq 0.4x - 1 \leq 3.4$$

a. $7 \leq x \leq 11$

b. $-11 \leq x \leq -7$

c. $7 \leq x < 11$

d. $-7 \leq x \leq 11$

e. $7 < x \leq 11$

ANSWER: a
POINTS: 1
REFERENCES: 1.7.55
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/22/2014 6:04 AM

16. Solve the inequality.

$$9 > \frac{1.5x + 6}{2} > 12$$

a. $-8 < x < -12$

b. $-8 < x < 12$

c. $-12 < x < -8$

d. $8 < x < 12$

e. No solution

ANSWER: e
POINTS: 1
REFERENCES: 1.7.56
QUESTION TYPE: Multi-Mode (Multiple choice)

Section 1.7 - Linear Inequalities in One Variable

HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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17. Solve the inequality.

$$|x| < 2$$

- a. $x < 2$
- b. $-2 \leq x < 2$
- c. $-2 \leq x \leq 2$
- d. $-2 < x < 2$
- e. $-2 < x \leq 2$

ANSWER: d
POINTS: 1
REFERENCES: 1.5.57
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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18. Solve the inequality.

$$|x| \geq 11$$

- a. $-11 \leq x \leq 11$
- b. $x \geq 11$
- c. $x \leq -11, x \geq 11$
- d. $-11 < x \leq 11$
- e. $x < -11, x > 11$

ANSWER: c
POINTS: 1
REFERENCES: 1.7.58
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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19. Solve the inequality.

$$\left| \frac{x}{9} \right| > 2$$

Section 1.7 - Linear Inequalities in One Variable

- a. $-18 < x \leq 18$
- b. $x \geq 18$
- c. $x < -18, x > 18$
- d. $x \leq -18, x \geq 18$
- e. $-18 \leq x \leq 18$

ANSWER: c
POINTS: 1
REFERENCES: 1.7.60
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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20. Solve the inequality.

$$|x - 7| < -1$$

- a. $x < -8, x > 6$
- b. $-8 < x < 8$
- c. $-8 < x < 6$
- d. $-6 < x < 6$
- e. No solution

ANSWER: e
POINTS: 1
REFERENCES: 1.7.61
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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21. Solve the inequality.

$$|x - 22| \leq 6$$

- a. $16 \leq x \leq 28$
- b. $-28 \leq x \leq 16$
- c. $-16 \leq x \leq 28$
- d. $-28 \leq x \leq -16$
- e. No solution

ANSWER: a
POINTS: 1
REFERENCES: 1.7.63

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QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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22. Solve the inequality.

$$|x - 8| \geq 0$$

- a. $x \leq 8$
- b. $x < 8$
- c. $x > 8$
- d. $x \geq 8$
- e. All real numbers x

ANSWER: e
POINTS: 1
REFERENCES: 1.7.64
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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23. Solve the inequality.

$$\left| \frac{x-3}{2} \right| \geq 7$$

- a. $x \leq -11, x \geq 17$
- b. $-17 \leq x \leq 11$
- c. $-17 \leq x \leq -11$
- d. $x \leq -17, x \geq 11$
- e. $-11 \leq x \leq 17$

ANSWER: a
POINTS: 1
REFERENCES: 1.7.67
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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24. Solve the inequality.

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$$|x + 16| + 3 > 19$$

- a. $0 < x < 16$
- b. $x > -32$
- c. $x < 0, x > 16$
- d. $x < -32, x > 0$
- e. $-32 < x < 0$

ANSWER: d

POINTS: 1

REFERENCES: 1.7.70

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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25. Solve the inequality.

$$5|x + 10| \geq 8$$

- a. $x \leq -\frac{58}{5}, x \geq -\frac{42}{5}$
- b. $x \geq -\frac{58}{5}, x \leq -\frac{42}{5}$
- c. $x < -\frac{58}{5}, x \geq -\frac{42}{5}$
- d. $-\frac{58}{5} \geq x \geq \frac{42}{5}$
- e. $x \geq -\frac{42}{5}$

ANSWER: a

POINTS: 1

REFERENCES: 1.7.71

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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26. Find the interval(s) on the real number line for which the radicand $\sqrt{x-4}$ is nonnegative.

- a. $(-\infty, 4]$
- b. $[4, \infty)$
- c. $(-4, \infty)$
- d. $(4, \infty)$

Section 1.7 - Linear Inequalities in One Variable

e. $(-\infty, 4)$

ANSWER: b
POINTS: 1
REFERENCES: 1.7.89
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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27. Find the interval(s) on the real number line for which the radicand $\sqrt{x+9}$ is nonnegative.

- a. $(-\infty, -9)$
- b. $(-9, \infty)$
- c. $(-\infty, 9]$
- d. $(9, \infty)$
- e. $[-9, \infty)$

ANSWER: e
POINTS: 1
REFERENCES: 1.7.91
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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28. Find the interval(s) on the real number line for which the radicand $\sqrt{7-x}$ is nonnegative.

- a. $(7, \infty)$
- b. $(-7, \infty)$
- c. $(-\infty, -9)$
- d. $(-\infty, 7]$
- e. $[-7, \infty)$

ANSWER: d
POINTS: 1
REFERENCES: 1.7.92
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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29. Find the interval(s) on the real number line for which the radicand $\sqrt[4]{11-2x}$ is nonnegative.

a. $(-\infty, -\frac{11}{2})$

b. $[-\frac{11}{2}, \infty)$

c. $(-\infty, \frac{11}{2}]$

d. $(-11, \infty)$

e. $(\frac{11}{2}, \infty)$

ANSWER: c
POINTS: 1
REFERENCES: 1.7.93
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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30. Use absolute value notation to define the interval (or pair of intervals) on the real number line.

All real numbers within 6 units of 11.

a. $|x - 11| > 6$

b. $|x + 11| > 6$

c. $|x - 11| \geq 6$

d. $|x - 11| \leq 6$

e. $|x - 11| < 6$

ANSWER: e
POINTS: 1
REFERENCES: 1.7.101
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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31. Use absolute value notation to define the interval (or pair of intervals) on the real number line.

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All real numbers at least two units from 8.

- a. $|x - 8| \geq 2$
- b. $|x - 8| > 2$
- c. $|x - 8| < 2$
- d. $|x - 8| \leq 2$
- e. $|x + 8| \geq 2$

ANSWER: a
POINTS: 1
REFERENCES: 1.7.102
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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32. Use absolute value notation to define the interval (or pair of intervals) on the real number line.

All real numbers more than six units from -9.

- a. $|x - 9| \leq 6$
- b. $|x - 9| > 6$
- c. $|x + 9| > 6$
- d. $|x + 9| < 6$
- e. $|x + 9| \geq 6$

ANSWER: c
POINTS: 1
REFERENCES: 1.7.103
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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33. Use absolute value notation to define the interval (or pair of intervals) on the real number line.

All real numbers no more than eight units from -5.

- a. $|x + 5| > 8$
- b. $|x + 5| \leq 8$
- c. $|x + 5| \geq 8$
- d. $|x - 5| \leq 8$
- e. $|x - 5| > 8$

ANSWER: b
POINTS: 1

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REFERENCES: 1.7.104
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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34. Use inequality notation to describe the subset of real numbers.

A company expects its earnings per share E for the next quarter to be no less than \$4.13 and no more than \$4.31.

- a. $4.13 > E > 4.31$
- b. $4.13 \leq E \leq 4.31$
- c. $4.13 < E \leq 4.31$
- d. $4.13 \leq E < 4.31$
- e. $4.13 < E < 4.31$

ANSWER: b
POINTS: 1
REFERENCES: 1.7.105
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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35. Use inequality notation to describe the subset of real numbers.

The net income I of a company is expected to be no less than \$239 million.

- a. $I \geq 239,000,000$
- b. $I \leq 239,000,000$
- c. $I < 239,000,000$
- d. $I > 239,000,000$
- e. None of these

ANSWER: a
POINTS: 1
REFERENCES: 1.7.108
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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36. The maximum heart rate of a person in normal health is related to the person's age by the equation $r = 240 -$

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A where r is the maximum heart rate in beats per minute and A is the person's age in years. Some physiologists recommend that during physical activity a sedentary person should strive to increase his or her heart rate to at least 50% of the maximum heart rate, and a highly fit person should strive to increase his or her heart rate to at most 70% of the maximum heart rate. (Source: American Heart Association)

Express as an interval the range of the target heart rate for a 25-year-old.

- a. $107.5 < r \leq 150.5$
- b. $107.5 \leq r \leq 150.5$
- c. $107.5 < r < 150.5$
- d. $117.5 \leq r \leq 160.5$
- e. $107.5 \leq r < 150.5$

ANSWER: b
POINTS: 1
REFERENCES: 1.7.109
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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37. You are considering two job offers. The first job pays \$3,400 per month. The second job pays \$1,000 per month plus a commission of 2% of your gross sales. Write an inequality yielding the gross sales x per month for which the second job will pay the greater monthly wage. Solve the inequality.

- a. $1,000 + 0.02x \geq 3,400; x \geq 120,000$
- b. $1,000 + 0.02x > 3,400; x > 120,000$
- c. $1,000 + 0.02x < 3,400; x > 120,000$
- d. $1,000 + 0.02x > 3,400; x < 120,000$
- e. $1,000 + 0.02x < 3,400; x < 120,000$

ANSWER: b
POINTS: 1
REFERENCES: 1.7.112
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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38. In order for an investment of \$750 to grow to more than \$930 in 2 years, what must the annual interest rate be? Round your answer to two decimal places. [$A = P(1 + rt)$]

- a. $r > 13.00\%$
- b. $r > 16.00\%$
- c. $r > 11.00\%$
- d. $r > 14.00\%$

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e. $r > 12.00\%$

ANSWER: e
POINTS: 1
REFERENCES: 1.7.114
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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39. The revenue from selling x units of a product is $R = 115.85x$. The cost of producing x units is $C = 93x + 750$. To obtain a profit, the revenue must be greater than the cost. For what values of x will this product return a profit?

- a. $x \leq 33$
- b. $x \geq 33$
- c. $x < 33$
- d. $x < 31$
- e. $32 < x < 33$

ANSWER: b
POINTS: 1
REFERENCES: 1.7.115
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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40. A doughnut shop sells a dozen doughnuts for \$4.75. Beyond the fixed costs (rent, utilities, and insurance) of \$220 per day, it costs \$2.5 for enough materials (flour, sugar, and so on) and labor to produce a dozen doughnuts. The daily profit from doughnut sales varies from \$60 to \$270. Between what levels (in dozens) do the daily sales vary?

(Round your answer to two decimal places.)

- a. $124.44 < x > 217.78$
- b. $124.44 < x < 217.78$
- c. $124.44 < x \leq 217.78$
- d. $124.44 \leq x < 217.78$
- e. $124.44 \leq x \leq 217.78$

ANSWER: e
POINTS: 1
REFERENCES: 1.7.117
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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41. A person enrolls in a diet and exercise program that guarantees a loss of at least $2\frac{1}{2}$ pounds per week. The person's weight at the beginning of the program is 165 pounds. Find the maximum number of weeks before the person attains a goal weight of 130 pounds.

- a. 14 wk
- b. 12 wk
- c. 24 wk
- d. 19 wk
- e. 29 wk

ANSWER: a

POINTS: 1

REFERENCES: 1.7.118

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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42. The average salaries S (in thousands of dollars) for elementary school teachers in the United States from 1990 through 2005 are approximated by the model

$$S = 1.09t + 30.9, 0 \leq t$$

where t represents the year, with $t = 0$ corresponding to 1990.

If this relationship between salary and time continues, when will the average salary exceed \$58,000? (Round the answer to two decimal places.)

- a. $t > 24.86$ (2015)
- b. $t < 28.86$ (before 2015)
- c. $t > 25.86$ (2016)
- d. $t < 26.86$ (before 2017)
- e. $t > 27.86$ (2018)

ANSWER: a

POINTS: 1

REFERENCES: 1.7.121

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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43. The numbers of eggs E (in billions) produced in the United States from 1990 through 2006 can be modeled by

$$E = 1.52t + 68.0, 0 \leq t$$

where t represents the year, with $t = 0$ corresponding to 1990.

If this relationship between number of eggs and time continues, when was the annual egg production 70 billion, but no more than 99 billion?

(Round the answer to two decimal places.)

- a. $3.32 \leq t \leq 22.39$; Between 1993 and 2012
- b. $2.32 \leq t \leq 21.39$; Between 1992 and 2011
- c. $4.32 \leq t \leq 23.39$; Between 1994 and 2013
- d. $5.32 \leq t \leq 24.39$; Between 1995 and 2014
- e. $1.32 \leq t \leq 20.39$; Between 1991 and 2010

ANSWER: e
POINTS: 1
REFERENCES: 1.7.122
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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44. The side of a square is measured as 10.2 inches with a possible error of $\frac{1}{4}$ inch. Using these measurements, determine the interval containing the possible areas of the square. Round your answers to three decimal places.

- a. $103.003 \text{ in.}^2 \leq \text{area} \leq 113.203 \text{ in.}^2$
- b. $99.003 \text{ in.}^2 \leq \text{area} \leq 109.203 \text{ in.}^2$
- c. $101.003 \text{ in.}^2 \leq \text{area} \leq 111.203 \text{ in.}^2$
- d. $102.003 \text{ in.}^2 \leq \text{area} \leq 112.203 \text{ in.}^2$
- e. $100.003 \text{ in.}^2 \leq \text{area} \leq 110.203 \text{ in.}^2$

ANSWER: b
POINTS: 1
REFERENCES: 1.7.123
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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Section 1.7 - Linear Inequalities in One Variable

45. You stop at a self-service gas station to buy 15 gallons of 87-octane gasoline at \$2.15 a gallon. The gas pump is accurate to within $\frac{1}{10}$ of a gallon. How much might you be undercharged or overcharged per gallon? Round your answer to two decimal places.

- a. \$0.43
- b. \$2.15
- c. \$0.22
- d. \$4.30
- e. \$0.02

ANSWER: c
POINTS: 1
REFERENCES: 1.7.125
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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46. A time study was conducted to determine the length of time required to perform a particular task in a manufacturing process. The times required by approximately two-thirds of the workers in the study satisfied the inequality

$$\left| \frac{t - 15.9}{1.7} \right| < 1$$

where t is time in minutes. Determine the interval on the real number line in which these times lie.

- a. $14.2 \leq t < 17.6$
- b. $-14.2 < t < 17.6$
- c. $14.2 \leq t \leq 17.6$
- d. $-17.6 < t < -14.2$
- e. $14.2 < t < 17.6$

ANSWER: e
POINTS: 1
REFERENCES: 1.7.127
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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47. The heights of two-thirds of the members of a population satisfy the inequality

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$$\left| \frac{h - 6.6}{2.7} \right| \leq 1$$

where h is measured in inches. Determine the interval on the real number line in which these heights lie.

- a. $3.9 \leq h \leq 9.3$
- b. $3.9 < h < 9.3$
- c. $3.9 < h \leq 9.3$
- d. $3.9 \leq h < 9.3$
- e. None of these

ANSWER: a
POINTS: 1
REFERENCES: 1.7.128
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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48. An electronic device is to be operated in an environment with relative humidity h in the interval defined by $|h - 80| \leq 30$. What are the minimum and maximum relative humidity for the operation of this device?

- a. 70 and 130
- b. 80 and 140
- c. 60 and 120
- d. 30 and 80
- e. 50 and 110

ANSWER: e
POINTS: 1
REFERENCES: 1.7.129
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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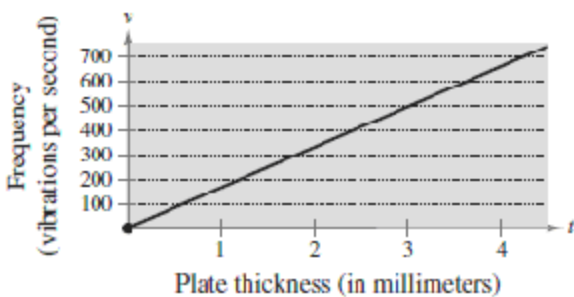
49. Michael Kasha of Florida State University used physics and mathematics to design a new classical guitar. The model he used for the frequency of the vibrations on a circular plate was

$$v = \left(\frac{2.6t}{d^2} \right) \sqrt{\frac{E}{\rho}},$$

where v is the frequency (in vibrations per second), t is the plate thickness (in millimeters), d is the diameter of the plate, E is the elasticity of the plate material, and ρ is the density of the plate material. For fixed values of d ,

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E and ρ the graph of the equation is a line (see figure).



Estimate the frequency when the plate thickness is 4 millimeters.

- a. Around 750
- b. Around 650
- c. Around 850
- d. Around 550
- e. None of these

ANSWER: b
POINTS: 1
REFERENCES: 1.7.130
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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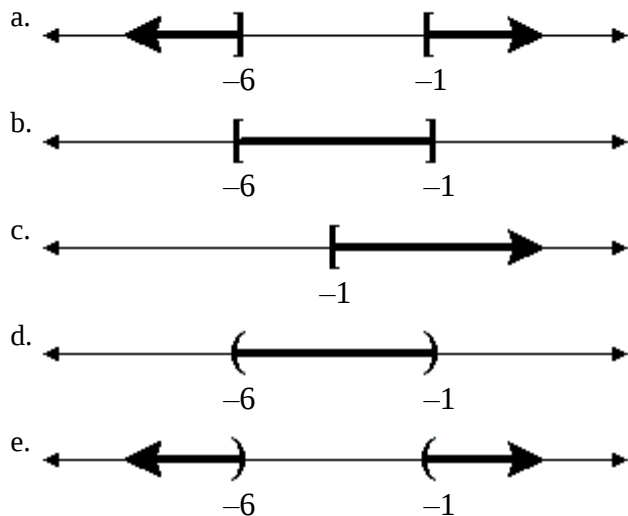
50. If $-10 \leq x \leq 4$, then which of the following is true.

- a. $10 \geq x$ and $x \geq 4$
- b. $-10 \geq -x$ and $x \geq 4$
- c. $10 \geq -x$ and $-x \geq -4$
- d. $-10 \geq -x$ and $-x \geq -4$
- e. $10 \geq x$ and $-x \geq -4$

ANSWER: c
POINTS: 1
REFERENCES: 1.7.132
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
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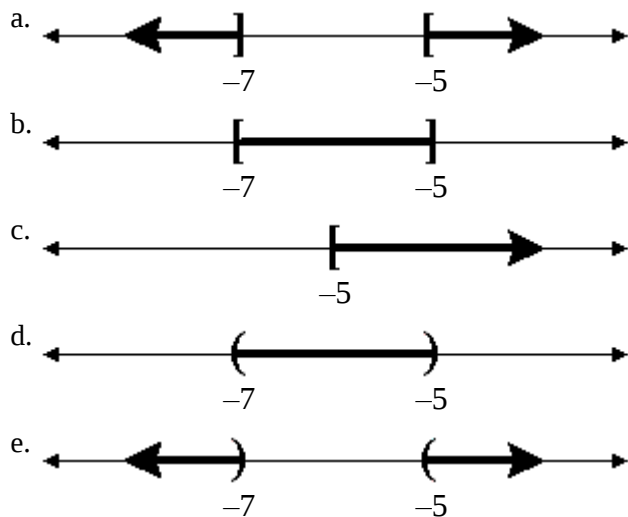
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51. Match the inequality $-6 \leq x \leq -1$ with its graph.



ANSWER: b
POINTS: 1
DIFFICULTY: Easy
REFERENCES: 1-6
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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52. Match the inequality $-7 < x < -5$ with its graph.



ANSWER: d
POINTS: 1
DIFFICULTY: Easy
REFERENCES: 1-6
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True

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53. Which of the following is not included in the solution set of the inequality $-3 \leq \frac{x+8}{16} \leq 3$?

a. $x = -56$

b. $x = -58$

c. $x = 37$

d. $x = 35$

e. $x = 8$

ANSWER: b

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 7-10

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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54. Which of the following is not included in the solution set of the inequality $|9x+6| < 7$?

a. $x = 2$

b. $x = -\frac{8}{9}$

c. $x = -\frac{4}{3}$

d. $x = -\frac{11}{18}$

e. $x = -\frac{13}{9}$

ANSWER: e

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 7-10

QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

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55. Solve: $-8 < -(x + 3) \leq 7$

a. $-10 \leq x < 5$

b. $-11 < x \leq -10$

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c. $-5 > x \geq -10$

d. $-10 > x \geq 11$

e. no solution

ANSWER: a

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 11-20

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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56. Solve: $3(x - 10) > 3x - 27$

a. $x > 3$

b. $-3 < x < 10$

c. $x \leq -20$

d. $x < -10$

e. no solution

ANSWER: e

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 11-20

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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57. Solve: $|1 + 11x| + 4 < 7$

a. $x < \frac{2}{11}$

b. $-\frac{2}{11} < x < \frac{4}{11}$

c. $-\frac{4}{11} < x < \frac{2}{11}$

d. $-\frac{10}{11} < x < \frac{12}{11}$

e. no solution

ANSWER: c

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 29-36

Section 1.7 - Linear Inequalities in One Variable

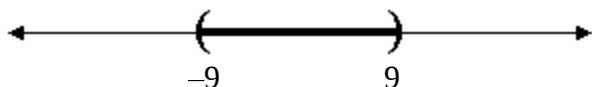
QUESTION TYPE: Multiple Choice

HAS VARIABLES: True

DATE CREATED: 9/23/2014 4:55 AM

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58. Use absolute value notation to define the interval shown below.



a. $|x + 9| < 0$

b. $|x| > -9$

c. $|9 - x| > 0$

d. $|x| < 9$

e. $|x - 9| > 0$

ANSWER: d

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 39-46

QUESTION TYPE: Multi-Mode (Multiple choice)

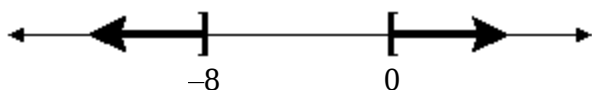
HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:17 PM

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59. Use absolute value notation to define the interval shown below.



a. $|x + 4| - 4 > 0$

b. $|x + 4| - 4 \geq 0$

c. $|x - 4| \geq 4$

d. $|x - 4| \geq 4$

e. $-8 \leq x \leq 0$

ANSWER: b

POINTS: 1

DIFFICULTY: Medium

REFERENCES: 39-46

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:17 PM

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60. Solve the inequality

Section 1.7 - Linear Inequalities in One Variable

$$4x + 7 < 15 + 2x$$

- a. $x > 4$
- b. $x < -4$
- c. $x > -4$
- d. $x < 4$
- e. None of the above.

ANSWER: d

POINTS: 1

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:17 PM

DATE MODIFIED: 9/23/2014 6:45 AM

61. Solve the inequality

$$\frac{7}{8}x - 5 \leq x + 2$$

- a. $x \leq -7$
- b. $x \geq -56$
- c. $x \leq -56$
- d. $x \geq -7$
- e. None of the above.

ANSWER: b

POINTS: 1

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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DATE MODIFIED: 9/23/2014 6:49 AM

62. Solve the inequality

$$19 < 2x + 8 < 24$$

- a. $22 < x < 32$
- b. $11 < x < 16$
- c. $\frac{27}{2} < x < 16$
- d. $27 < x < 32$
- e. $\frac{11}{2} < x < 8$

ANSWER: e

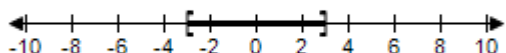
Section 1.7 - Linear Inequalities in One Variable

POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/23/2014 6:56 AM

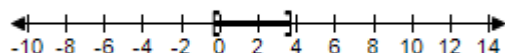
63. Sketch the solution to the following inequality on the real number line:

$$2|5 - 3x| \leq 6$$

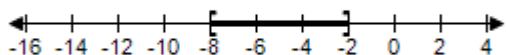
a.



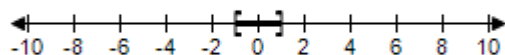
b.



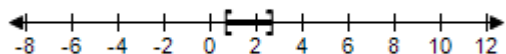
c.



d.

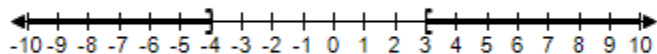


e.



ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/23/2014 7:20 AM

64. Use absolute value notation to define the interval (or pair of intervals) on the real number line below.



- a. $x < -4, x > 3$
- b. $-4 < x < 3$
- c. $x \leq -4, x \geq 3$
- d. $-4 \leq x \leq 3$
- e. None of the above.

Section 1.7 - Linear Inequalities in One Variable

ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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65. Solve the inequality

$$\left| \frac{x-4}{3} \right| \geq 5$$

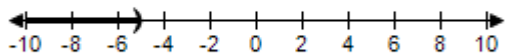
- a. $x \leq -11$
- b. $x \geq 19$
- c. $-11 \leq x \leq 19$
- d. $x \leq 19$
- e. $x \leq -11, x \geq 19$

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 9/23/2014 7:36 AM

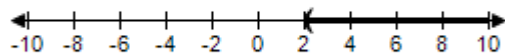
66. Solve the inequality and graph the solution on the real number line.

$$\frac{x+12}{x+5} - 2 < 0$$

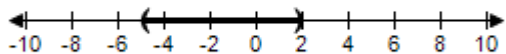
a.



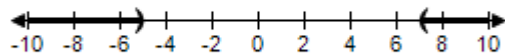
b.



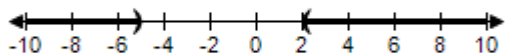
c.



d.



e.



Section 1.7 - Linear Inequalities in One Variable

ANSWER: e
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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DATE MODIFIED: 9/23/2014 7:50 AM

Section 1.8 - Other Types of Inequalities

1. Determine whether the value of $x = \frac{2}{7}$ is a solution of the inequality.

$$x^2 - 2 < 0$$

a. Yes

b. No

ANSWER: a

POINTS: 1

REFERENCES: 1.8.5

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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2. Determine whether the value of $x = -6$ is a solution of the inequality.

$$x^2 - x - 14 \geq 0$$

a. No

b. Yes

ANSWER: b

POINTS: 1

REFERENCES: 1.8.6

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:17 PM

DATE MODIFIED: 5/16/2015 3:01 AM

3. Determine whether the value of $x = -1$ is a solution of the inequality.

$$\frac{3x^2}{x^2 + 4} < 1$$

a. Yes

b. No

ANSWER: a

POINTS: 1

REFERENCES: 1.8.8

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:17 PM

DATE MODIFIED: 5/16/2015 3:02 AM

Section 1.8 - Other Types of Inequalities

4. Find the key numbers of the expression.

$$16x^3 - 49x^2$$

- a. $0, \frac{16}{49}$
- b. $0, 49$
- c. $0, 51$
- d. $0, -49$
- e. $0, \frac{49}{16}$

ANSWER: e

POINTS: 1

REFERENCES: 1.8.10

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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5. Find the key numbers of the expression.

$$\frac{1}{x-7} + 1$$

- a. $-6, 7$
- b. $6, 7, 1$
- c. $-6, -7$
- d. $6, 7$
- e. $6, -7$

ANSWER: d

POINTS: 1

REFERENCES: 1.8.11

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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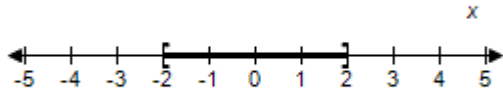
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6. Solve the inequality and graph the solution on the real number line.

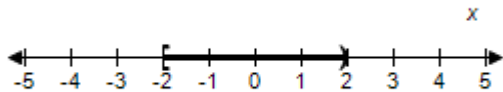
$$x^2 < 4$$

- a. $[-2, 2]$

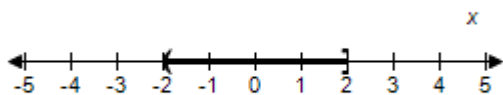
Section 1.8 - Other Types of Inequalities



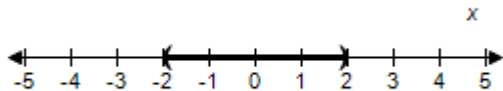
b. $[-2, 2)$



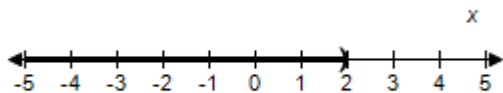
c. $(-2, 2]$



d. $(-2, 2)$



e. $(-\infty, 2)$



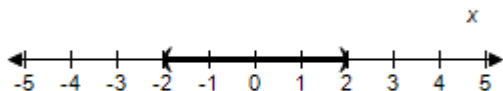
ANSWER: d
POINTS: 1
REFERENCES: 1.8.13
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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7. Solve the inequality and graph the solution on the real number line.

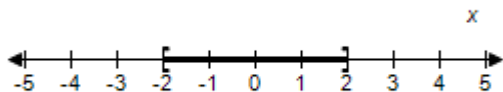
$$x^2 \leq 4$$

a. $(-2, 2)$

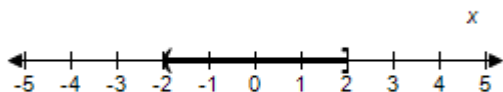
Section 1.8 - Other Types of Inequalities



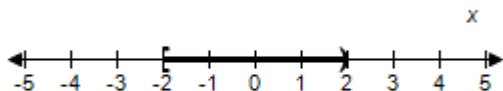
b. $[-2, 2]$



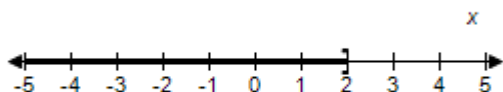
c. $(-2, 2]$



d. $[-2, 2)$



e. $(-\infty, 2]$



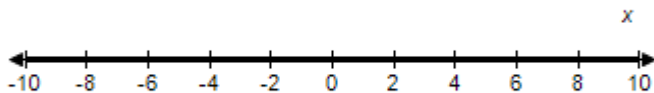
ANSWER: b
POINTS: 1
REFERENCES: 1.8.14
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/17/2021 7:02 AM

8. Solve the inequality and graph the solution on the real number line.

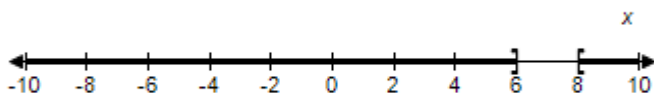
$$(x - 7)^2 \geq 1$$

a. $(-\infty, \infty)$

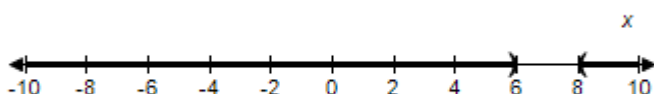
Section 1.8 - Other Types of Inequalities



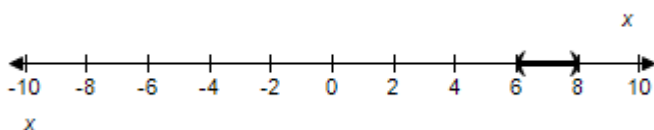
b. $(-\infty, 6] \cup [8, \infty)$



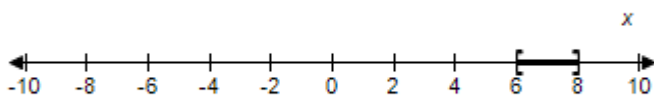
c. $(-\infty, 6) \cup (8, \infty)$



d. $(6, 8)$



e. $[6, 8]$



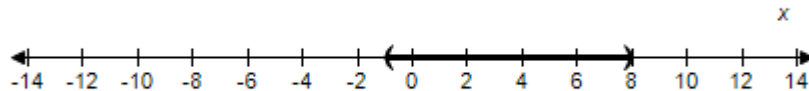
ANSWER: b
POINTS: 1
REFERENCES: 1.8.16
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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9. Solve the inequality and graph the solution on the real number line.

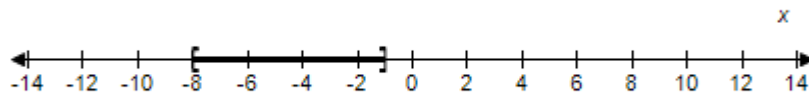
$$x^2 - 7x + 7 < 15$$

a. $(-1, 8)$

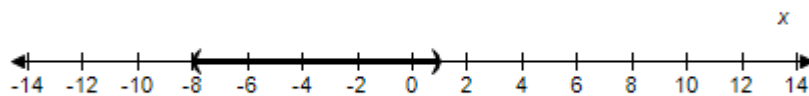
Section 1.8 - Other Types of Inequalities



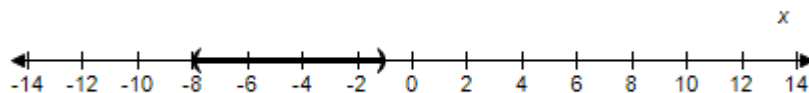
b. $[-8, -1]$



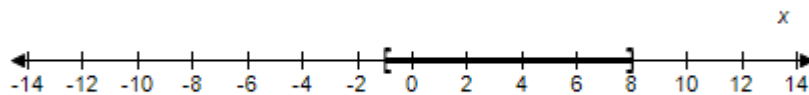
c. $(-8, 1)$



d. $(-8, -1)$



e. $[-1, 8]$



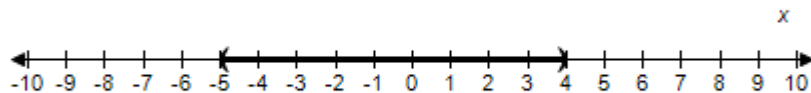
ANSWER: a
POINTS: 1
REFERENCES: 1.8.18
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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10. Solve the inequality and graph the solution on the real number line.

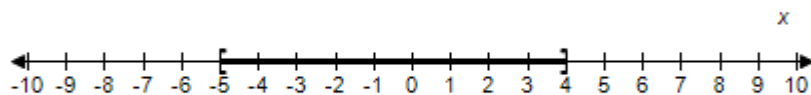
$$x^2 + x < 20$$

a. $(-5, 4)$

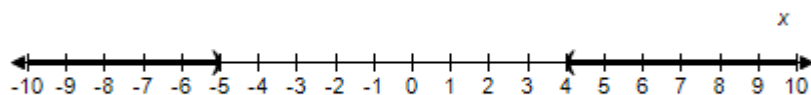
Section 1.8 - Other Types of Inequalities



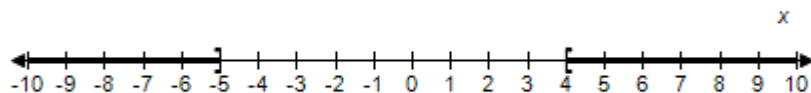
b. $[-5, 4]$



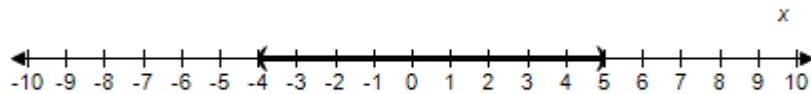
c. $(-\infty, -5) \cup (4, \infty)$



d. $(-\infty, -5] \cup [4, \infty)$



e. $(-4, 5)$



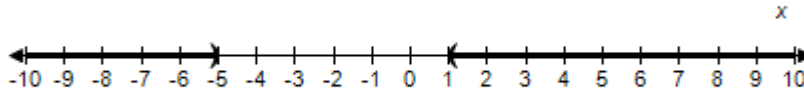
ANSWER: a
POINTS: 1
REFERENCES: 1.8.19
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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11. Solve the inequality and graph the solution on the real number line.

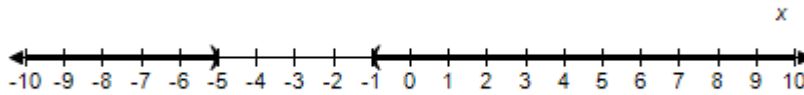
$$x^2 + 4x > 5$$

a. $(-\infty, -5) \cup (1, \infty)$

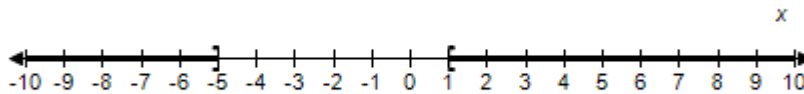
Section 1.8 - Other Types of Inequalities



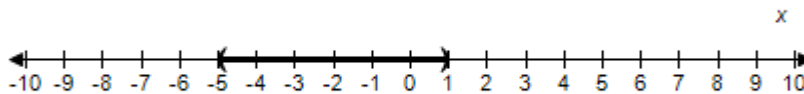
b. $(-\infty, -5) \cup (-1, \infty)$



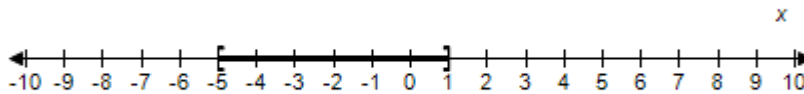
c. $(-\infty, -5] \cup [1, \infty)$



d. $(-5, 1)$



e. $[-5, 1]$



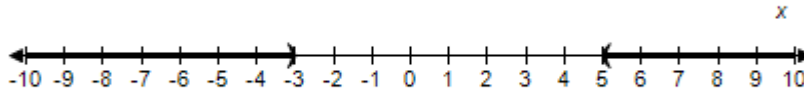
ANSWER: a
POINTS: 1
REFERENCES: 1.8.20
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 2:17 AM

12. Solve the inequality and graph the solution on the real number line.

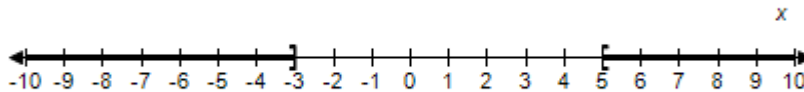
$$x^2 > 2x + 15$$

a. $(-\infty, -3) \cup (5, \infty)$

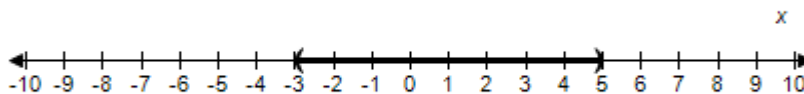
Section 1.8 - Other Types of Inequalities



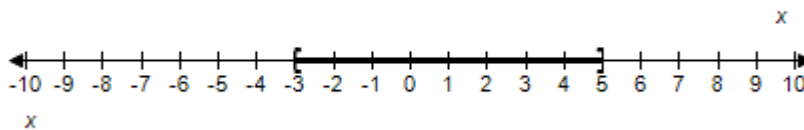
b. $(-\infty, -3] \cup [5, \infty)$



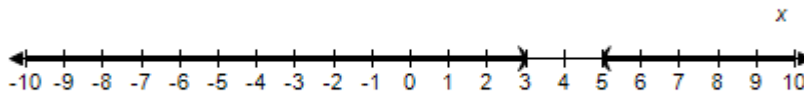
c. $(-3, 5)$



d. $[-3, 5]$



e. $(-\infty, 3) \cup (5, \infty)$



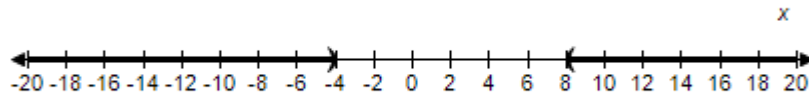
ANSWER: a
POINTS: 1
REFERENCES: 1.8.22
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 2:33 AM

13. Solve the inequality and graph the solution on the real number line.

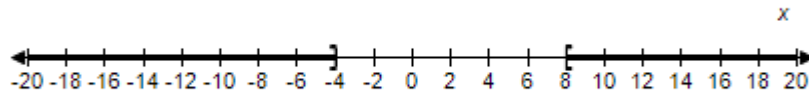
$$x^2 - 4x - 32 > 0$$

a. $(-\infty, -4) \cup (8, \infty)$

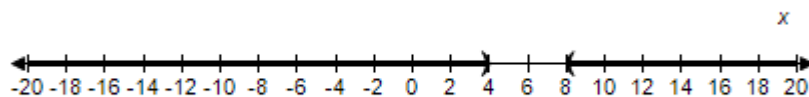
Section 1.8 - Other Types of Inequalities



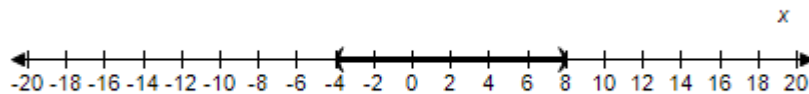
b. $(-\infty, -4] \cup [8, \infty)$



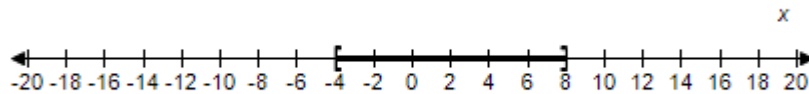
c. $(-\infty, 4) \cup (8, \infty)$



d. $(-4, 8)$



e. $[-4, 8]$



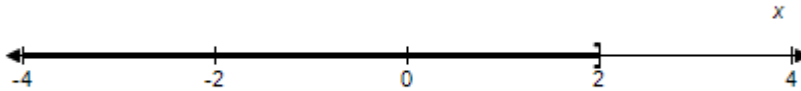
ANSWER: a
POINTS: 1
REFERENCES: 1.8.25
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 2:43 AM

14. Solve the inequality and graph the solution on the real number line.

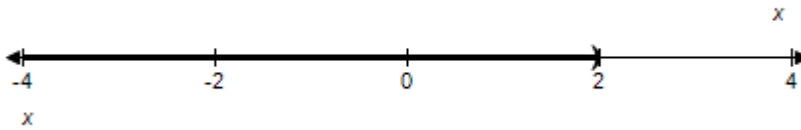
$$x^3 + 2x^2 - 4x - 8 \leq 0$$

a. $(-\infty, 2]$

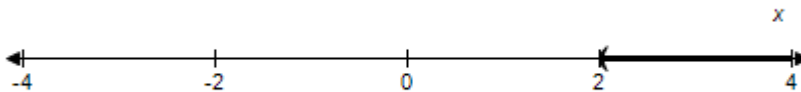
Section 1.8 - Other Types of Inequalities



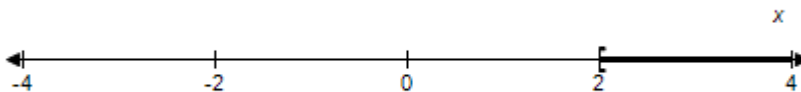
b. $(-\infty, 2)$



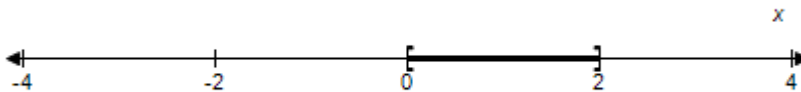
c. $(2, \infty)$



d. $[2, \infty)$



e. $[0, 2]$



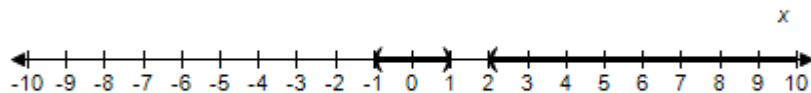
ANSWER: a
POINTS: 1
REFERENCES: 1.8.26
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 2:58 AM

15. Solve the inequality and graph the solution on the real number line.

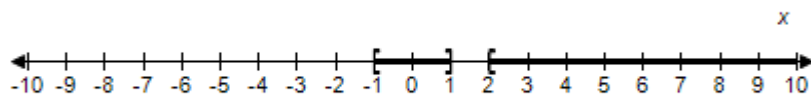
$$x^3 - 2x^2 - x > -2$$

a. $(-1, 1) \cup (2, \infty)$

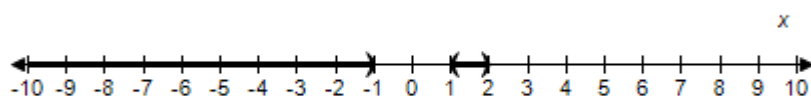
Section 1.8 - Other Types of Inequalities



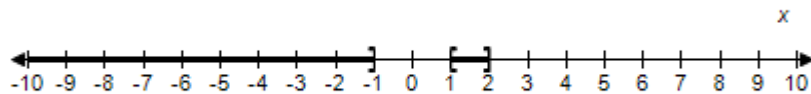
b. $[-1, 1] \cup [2, \infty)$



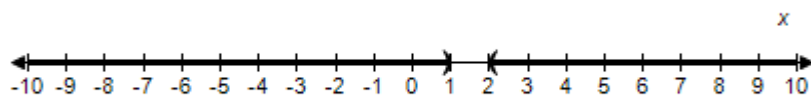
c. $(-\infty, -1) \cup (1, 2)$



d. $(-\infty, -1] \cup [1, 2]$



e. $(-\infty, 1) \cup (2, \infty)$



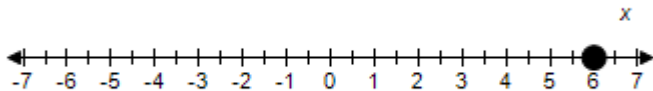
ANSWER: a
POINTS: 1
REFERENCES: 1.8.27
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 3:30 AM

16. Solve the inequality and graph the solution on the real number line.

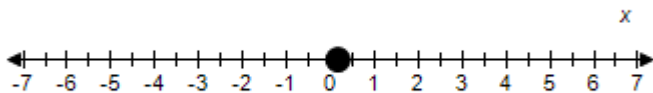
$$36x^2 - 12x + 1 \leq 0$$

a. $x = 6$

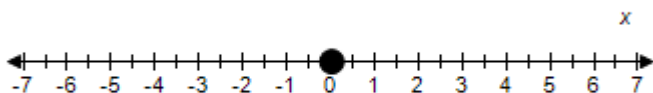
Section 1.8 - Other Types of Inequalities



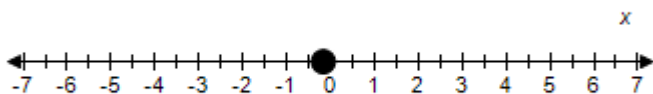
b. $x = \frac{1}{6}$



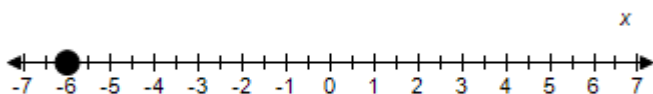
c. $x = \frac{1}{36}$



d. $x = -\frac{1}{6}$



e. $x = -6$



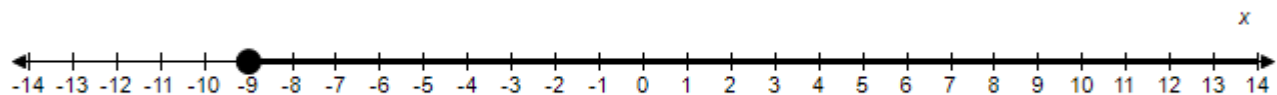
ANSWER: b
POINTS: 1
REFERENCES: 1.8.29
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 4:03 AM

17. Solve the inequality and graph the solution on the real number line.

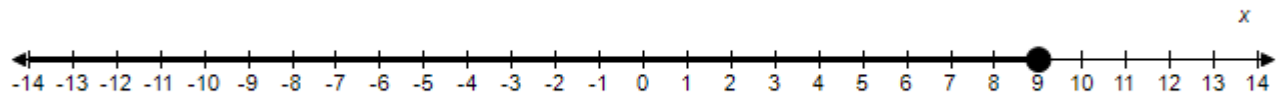
$$x^2 + 5x + 9 > 0$$

Section 1.8 - Other Types of Inequalities

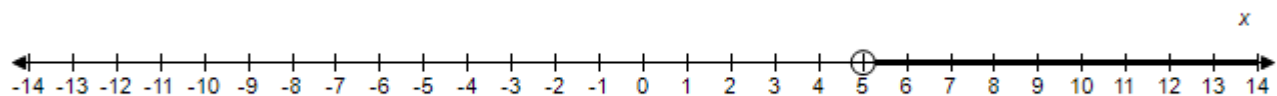
a. $x \geq -9$



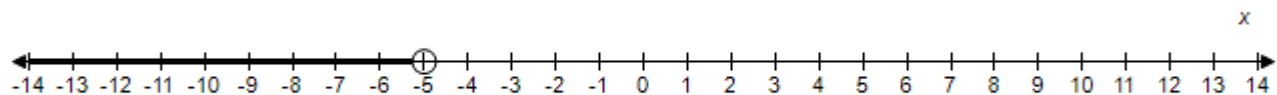
b. $x \leq 9$



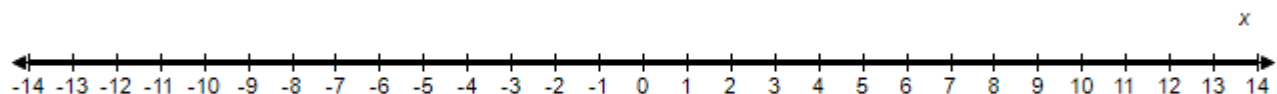
c. $x > 5$



d. $x < -5$



e. All real numbers



ANSWER: e
POINTS: 1
REFERENCES: 1.8.30
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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18. Solve the inequality and write the solution set in interval notation.

$$6x^2 - 10x < 0$$

a. $(-\infty, 0] \cup [\frac{5}{3}, \infty)$

Section 1.8 - Other Types of Inequalities

b. $\emptyset$

c. $(-\infty, 0) \cup (\frac{5}{3}, \infty)$

d. $[-\frac{5}{3}, \infty)$

e. $(0, \frac{5}{3})$

ANSWER: e
POINTS: 1
REFERENCES: 1.8.31
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 4:22 AM

19. Solve the inequality and write the solution set in interval notation.

$$9x^3 - 18x^2 > 0$$

a. $(2, \infty)$

b. $(-\infty, -2)$

c. $(-2, \infty)$

d. $(-\infty, 2)$

e. $(-\infty, 9)$

ANSWER: a
POINTS: 1
REFERENCES: 1.8.32
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 4:30 AM

20. Solve the inequality and write the solution set in interval notation.

$$x^3 - 25x \geq 0$$

a. $[-5, 0] \cup [5, \infty]$

b. $[-5, 0] \cup [5, \infty)$

c. $[-25, 0] \cup [5, \infty]$

d. $[-25, \infty)$

e. $[-5, 0] \cap [5, \infty)$

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ANSWER: b
POINTS: 1
REFERENCES: 1.8.33
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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21. Solve the inequality and write the solution set in interval notation.

$$x^6(x-3) \leq 0$$

- a. $(-\infty, 3]$
- b. $(-\infty, -3)$
- c. $(-\infty, -3]$
- d. $(-3, 3]$
- e. $(-\infty, 3)$

ANSWER: a
POINTS: 1
REFERENCES: 1.8.36
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 4:44 AM

22. Use a graphing utility to graph the equation. Use the graph to approximate the values of x that satisfy the inequality.

Equation:

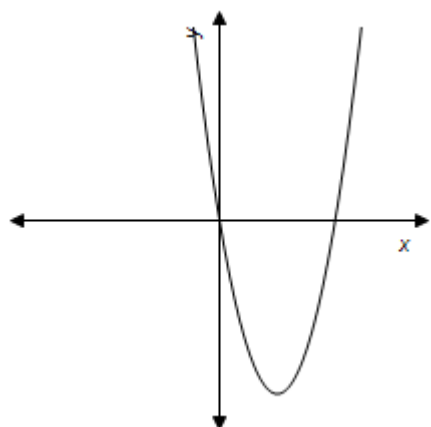
$$y = \frac{1}{6}x^2 - 6x + 1$$

Inequality:

$$y \leq 0$$

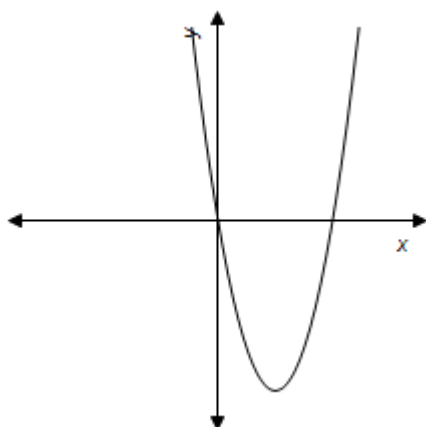
- a.
- b.

Section 1.8 - Other Types of Inequalities



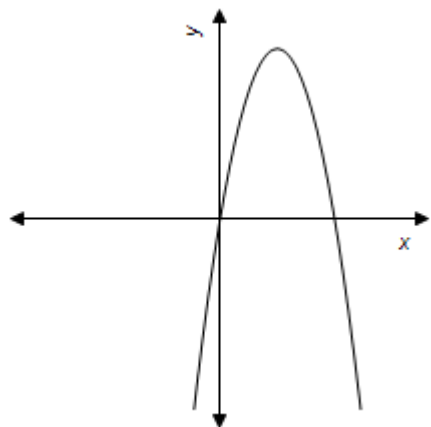
$$0 \leq x \leq 36$$

c.

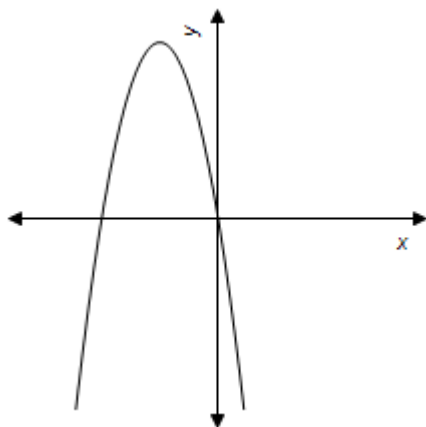


$$18 - \sqrt{318} \leq x \leq 18 + \sqrt{318}$$

d.

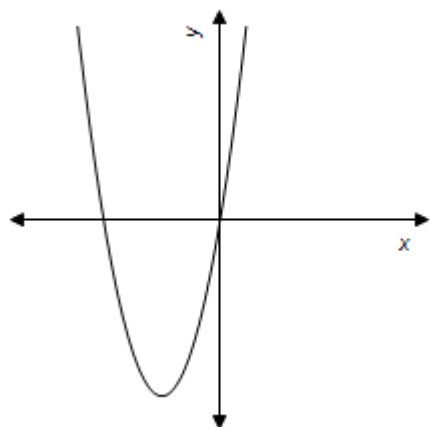


$$x \leq 18 - \sqrt{318}, x \geq 18 + \sqrt{318}$$



$$x \leq -18 - \sqrt{330}, x \geq -18 + \sqrt{330}$$

e.



$$-18 - \sqrt{330} \leq x \leq -18 + \sqrt{330}$$

ANSWER: b

POINTS: 1

REFERENCES: 1.8.38

Section 1.8 - Other Types of Inequalities

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

DATE CREATED: 6/10/2014 4:17 PM

DATE MODIFIED: 6/16/2021 6:52 AM

23. Use a graphing utility to graph the equation. Use the graph to approximate the values of x that satisfy the inequality.

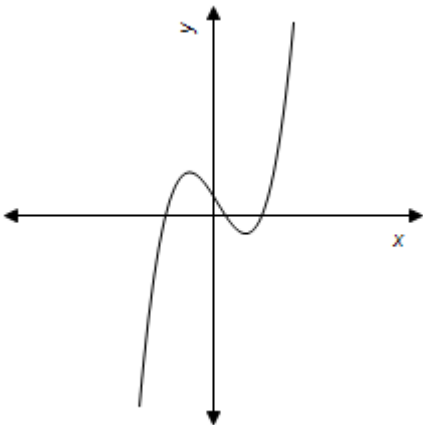
Equation:

$$y = x^3 - x^2 - 16x + 16$$

Inequality:

$$y \leq 0$$

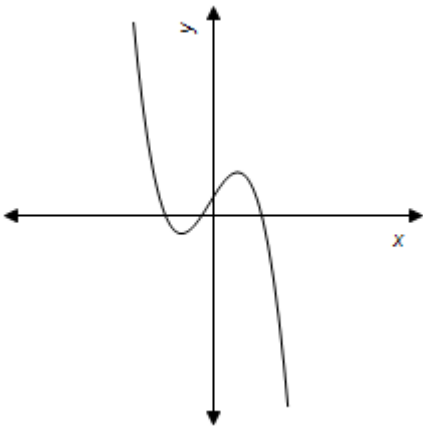
a.



$$-4 \leq x \leq 1$$

$$4 \leq x < \infty$$

c.

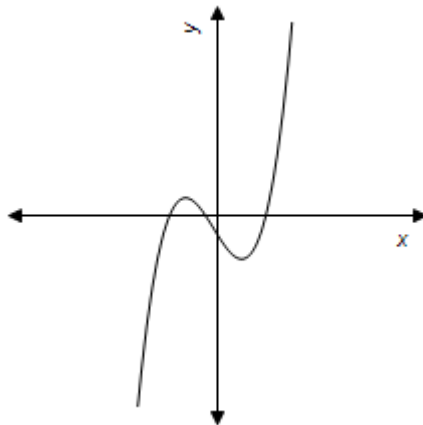


$$-4 \leq x \leq -1$$

$$4 \leq x < \infty$$

e.

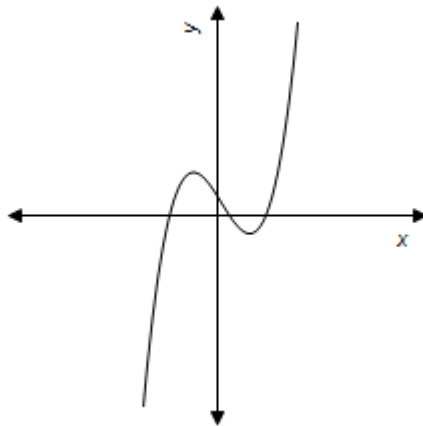
b.



$$-\infty < x \leq -4$$

$$-1 \leq x \leq 4$$

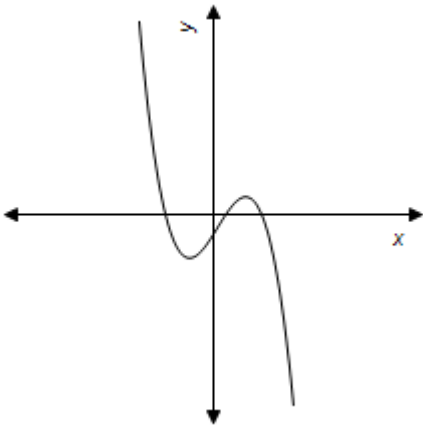
d.



$$-\infty < x \leq -4$$

$$1 \leq x \leq 4$$

Section 1.8 - Other Types of Inequalities



$$-4 \leq x \leq 1$$

$$4 \leq x < \infty$$

ANSWER: d

POINTS: 1

REFERENCES: 1.8.40a

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

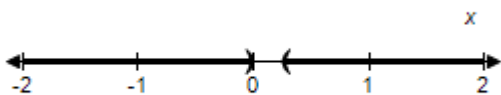
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DATE MODIFIED: 6/16/2021 7:37 AM

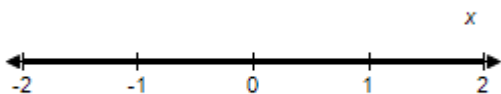
24. Solve the inequality and graph the solution on the real number line.

$$\frac{4x-1}{x} > 0$$

a. $(-\infty, 0) \cup \left(\frac{1}{4}, \infty\right)$

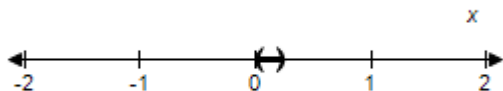


b. $(-\infty, \infty)$

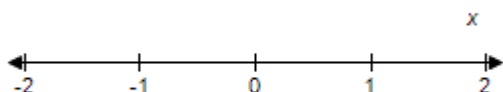


c. $\left(0, \frac{1}{4}\right)$

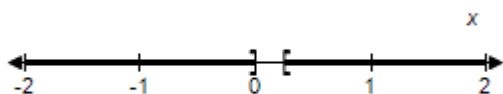
Section 1.8 - Other Types of Inequalities



d. $(-\infty, 0) \cap \left(\frac{1}{4}, \infty\right)$



e. $(-\infty, 0] \cup [1/4, \infty)$

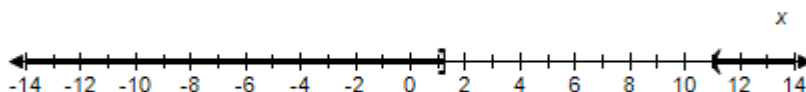


ANSWER: a
POINTS: 1
REFERENCES: 1.8.41
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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25. Solve the inequality and graph the solution on the real number line.

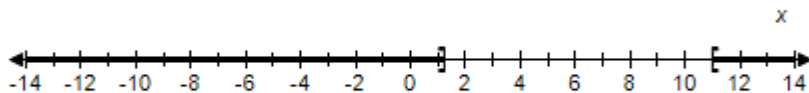
$$\frac{9x - 11}{x - 11} \geq 0$$

a. $\left(-\infty, \frac{11}{9}\right] \cup (11, \infty)$

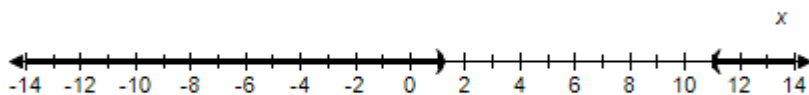


b. $\left(-\infty, \frac{11}{9}\right] \cup [11, \infty)$

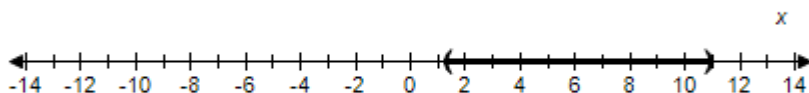
Section 1.8 - Other Types of Inequalities



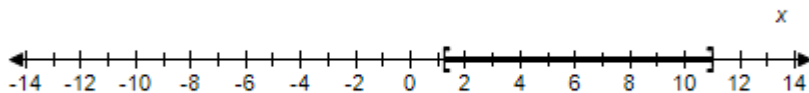
c. $\left(-\infty, \frac{11}{9}\right) \cup (11, \infty)$



d. $\left(\frac{11}{9}, 11\right)$



e. $\left[\frac{11}{9}, 11\right]$



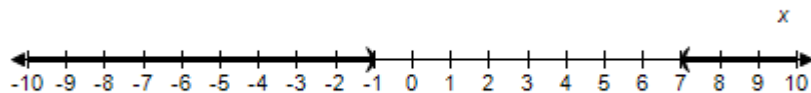
ANSWER: a
 POINTS: 1
 REFERENCES: 1.8.43
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
 DATE CREATED: 6/10/2014 4:17 PM
 DATE MODIFIED: 6/16/2021 8:55 AM

26. Solve the inequality and graph the solution on the real number line.

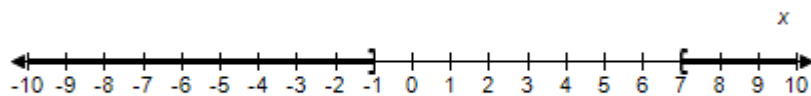
$$\frac{x+9}{x+1} - 2 < 0$$

a. $(-\infty, -1) \cup (7, \infty)$

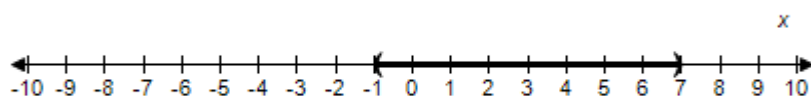
Section 1.8 - Other Types of Inequalities



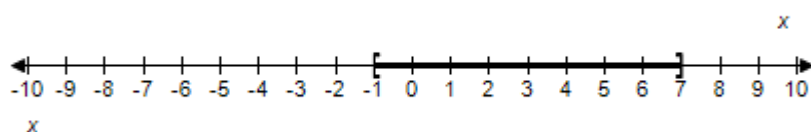
b. $(-\infty, -1] \cup [7, \infty)$



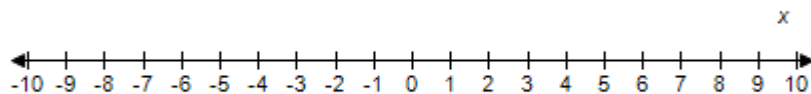
c. $(-1, 7)$



d. $[-1, 7]$



e. $(-\infty, -1) \cap (7, \infty)$



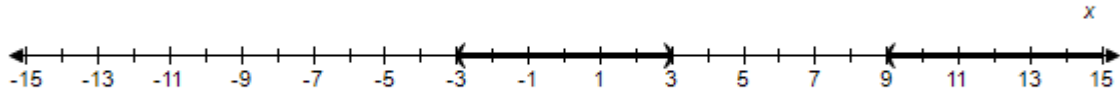
ANSWER: a
POINTS: 1
REFERENCES: 1.8.45
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 9:09 AM

27. Solve the inequality and graph the solution on the real number line.

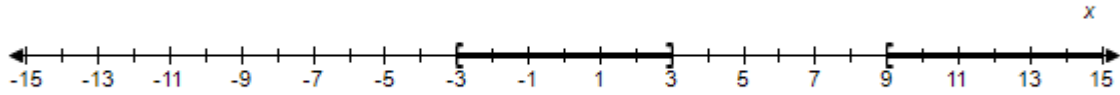
$$\frac{2}{x+3} > \frac{1}{x-3}$$

a. $(-3, 3) \cup (9, \infty)$

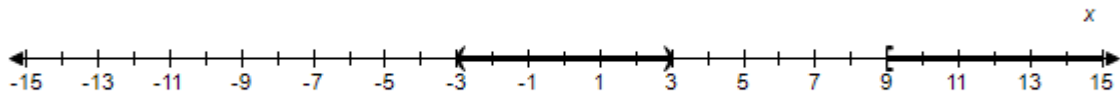
Section 1.8 - Other Types of Inequalities



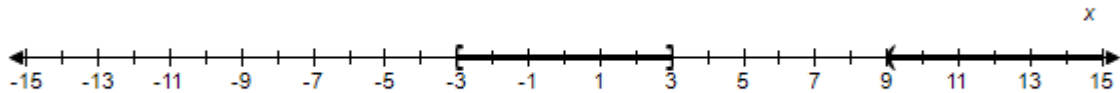
b. $[-3, 3] \cup [9, \infty)$



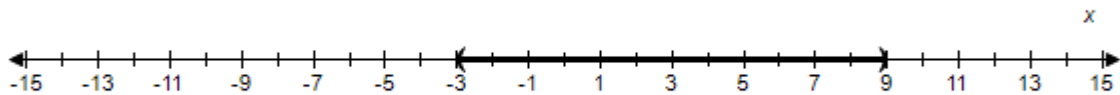
c. $(-3, 3) \cup [9, \infty)$



d. $[-3, 3] \cup (9, \infty)$



e. $(-3, 9)$



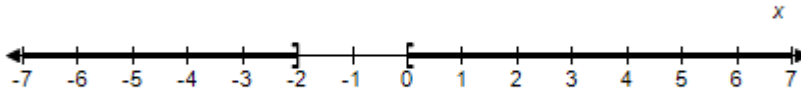
ANSWER: a
POINTS: 1
REFERENCES: 1.8.47
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 9:21 AM

28. Solve the inequality and graph the solution on the real number line.

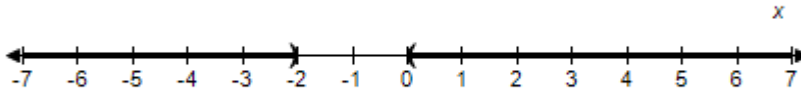
$$\frac{1}{x} \geq \frac{1}{x+2}$$

a. $(-\infty, -2] \cup [0, \infty)$

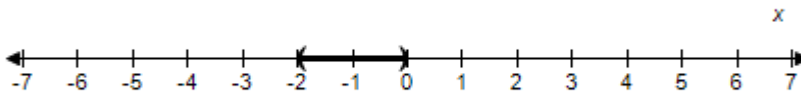
Section 1.8 - Other Types of Inequalities



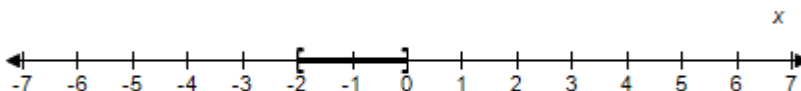
b. $(-\infty, -2) \cup (0, \infty)$



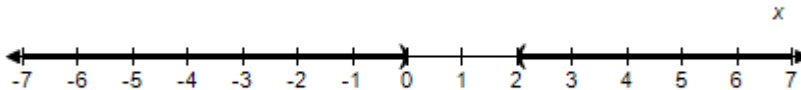
c. $(-2, 0)$



d. $[-2, 0]$



e. $(-\infty, 0) \cup (2, \infty)$



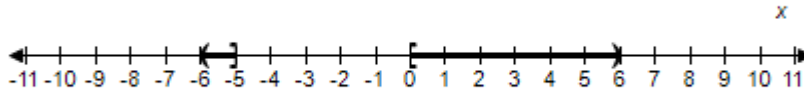
ANSWER: b
POINTS: 1
REFERENCES: 1.8.50
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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29. Solve the inequality and graph the solution on the real number line.

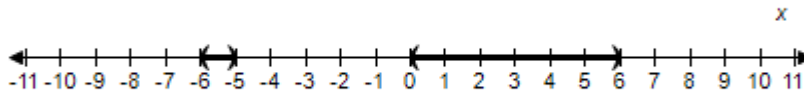
$$\frac{x^2 + 5x}{x^2 - 36} \leq 0$$

a. $(-6, -5] \cup [0, 6)$

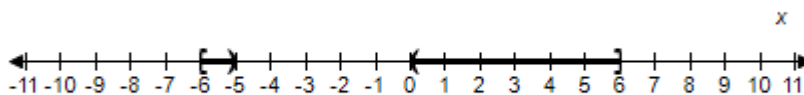
Section 1.8 - Other Types of Inequalities



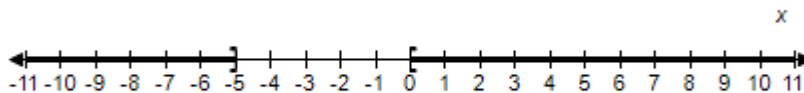
b. $(-6, -5) \cup (0, 6)$



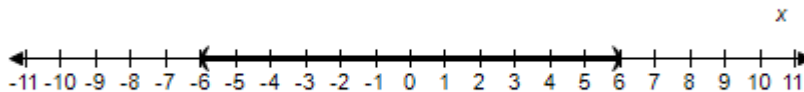
c. $[-6, -5) \cup (0, 6]$



d. $(-\infty, -5] \cup [0, \infty)$



e. $(-6, 6)$



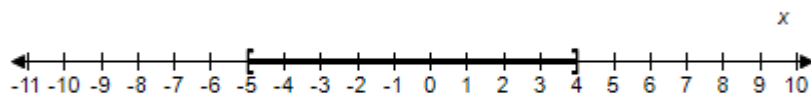
ANSWER: a
POINTS: 1
REFERENCES: 1.8.51
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 10:13 AM

30. Solve the inequality and graph the solution on the real number line.

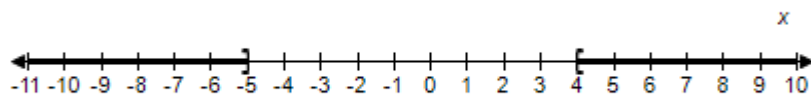
$$\frac{x^2 + x - 20}{x} \geq 0$$

a. $[-5, 4]$

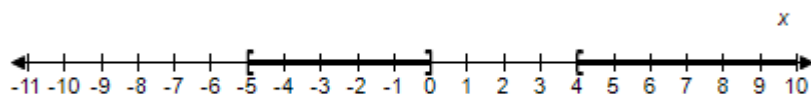
Section 1.8 - Other Types of Inequalities



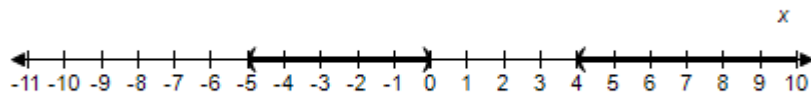
b. $(-\infty, -5] \cup [4, \infty)$



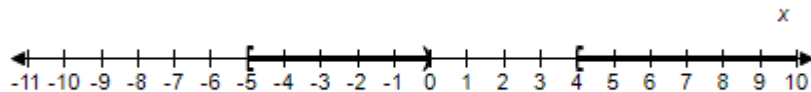
c. $[-5, 0] \cup [4, \infty)$



d. $(-5, 0) \cup (4, \infty)$



e. $[-5, 0) \cup [4, \infty)$



ANSWER: e
POINTS: 1
REFERENCES: 1.8.52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/16/2021 10:26 AM

31. Use a graphing utility to graph the equation. Use the graph to approximate the values of x that satisfy the inequality.

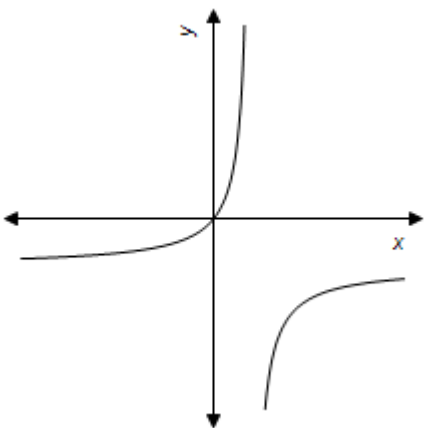
Equation:

$$y = \frac{5x}{x-4}$$

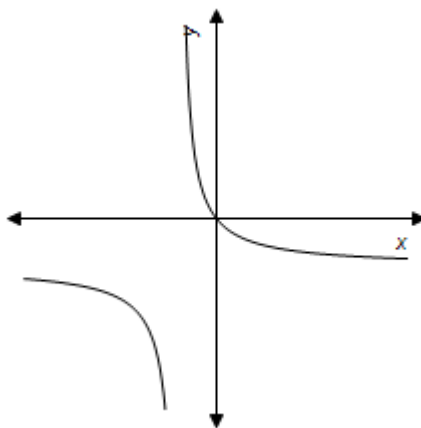
Section 1.8 - Other Types of Inequalities

Inequality:
 $y \geq 8$

a.



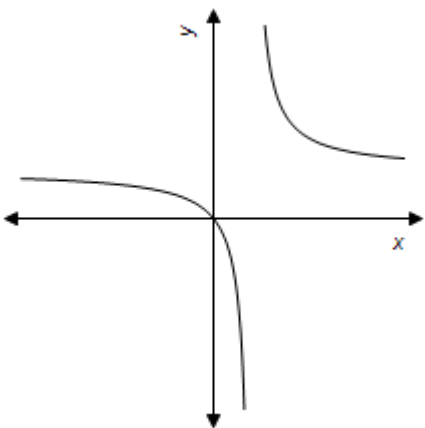
b.



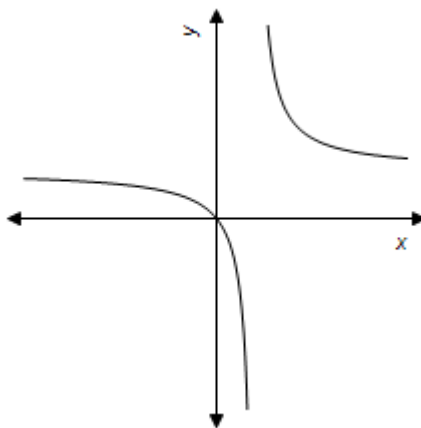
$$\frac{32}{13} \leq x < 4$$

$$-4 < x \leq -\frac{32}{13}$$

c.



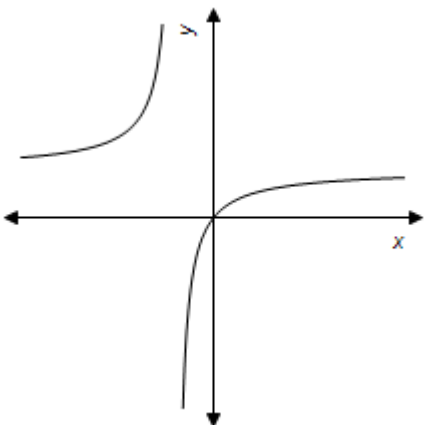
d.



$$x < 4, x \geq \frac{32}{3}$$

$$4 < x \leq \frac{32}{3}$$

e.



Section 1.8 - Other Types of Inequalities

$$-\frac{32}{3} \leq x < -4$$

ANSWER: d

POINTS: 1

REFERENCES: 1.8.55

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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DATE MODIFIED: 6/16/2021 11:03 AM

32. Use a graphing utility to graph the equation. Use the graph to approximate the values of x that satisfy the inequality.

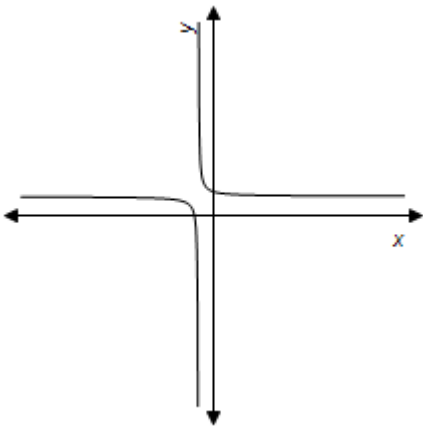
Equation:

$$y = \frac{5(x-5)}{x+4}$$

Inequality:

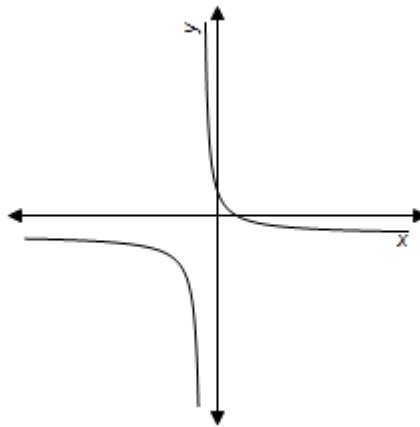
$$y \leq 0$$

a.



$$-5 \leq x < -4$$

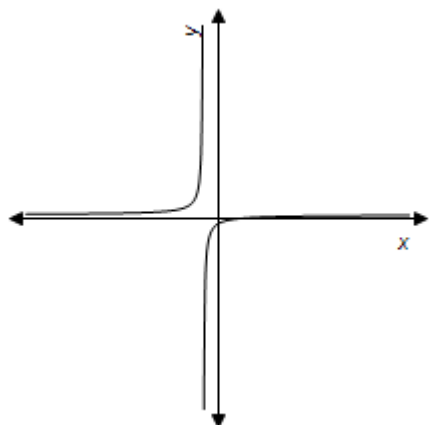
b.



$$x < -4$$
$$x \geq 5$$

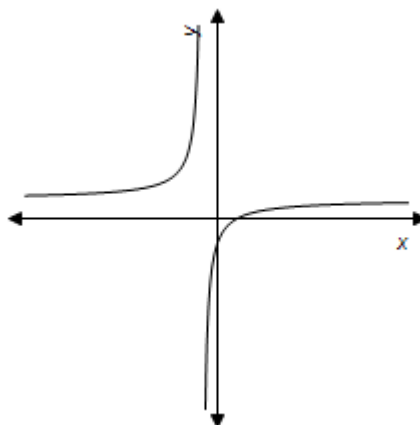
Section 1.8 - Other Types of Inequalities

c.



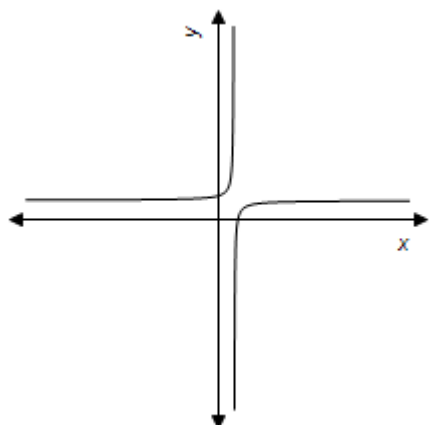
$$-4 < x \leq 5$$

d.



$$-4 < x \leq 5$$

e.



$$4 < x \leq 5$$

ANSWER: d
 POINTS: 1
 REFERENCES: 1.8.56a
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
 DATE CREATED: 6/10/2014 4:17 PM
 DATE MODIFIED: 6/17/2021 2:18 AM

33. Use a graphing utility to graph the equation. Use the graph to approximate the values of x that satisfy the inequality.

Equation:

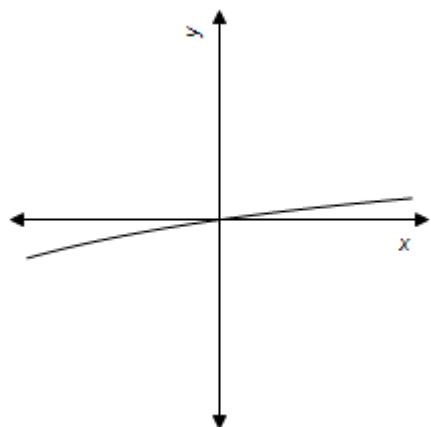
$$y = \frac{7x^2}{x^2 + 49}$$

Inequality:

$$y \leq 2$$

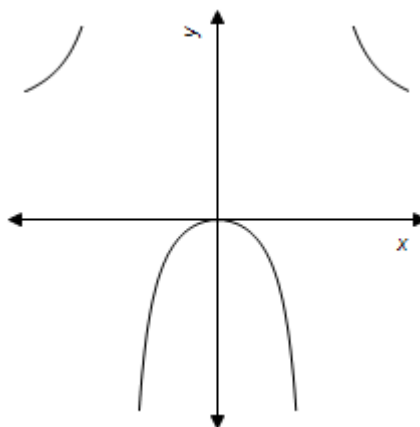
Section 1.8 - Other Types of Inequalities

a.



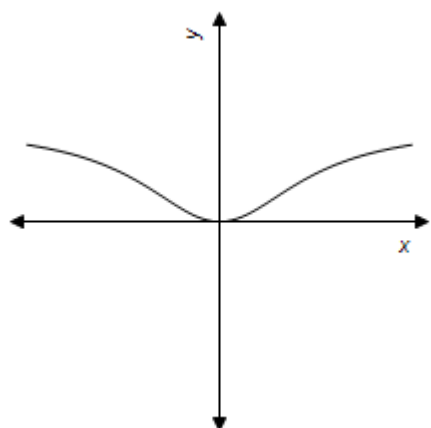
$$-49 < x \leq \frac{98}{5}$$

b.



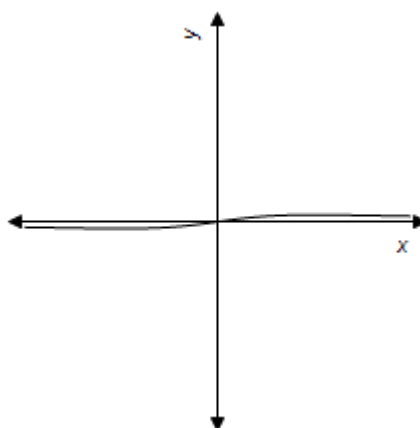
$$-7 < x < 7$$

c.



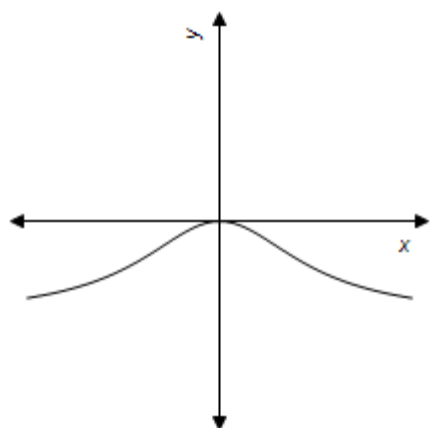
$$-7\sqrt{\frac{2}{5}} \leq x \leq 7\sqrt{\frac{2}{5}}$$

d.



$$-\infty < x < \infty$$

e.



$$-\infty < x < \infty$$

ANSWER:

c

Section 1.8 - Other Types of Inequalities

POINTS: 1
REFERENCES: 1.8.57b
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/17/2021 2:54 AM

34. Use a graphing utility to graph the equation. Use the graph to approximate the values of x that satisfy the following inequality.

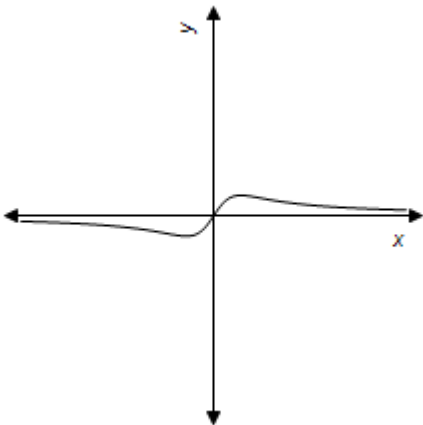
Equation:

$$y = \frac{3x}{x^2 + 2}$$

Inequality:

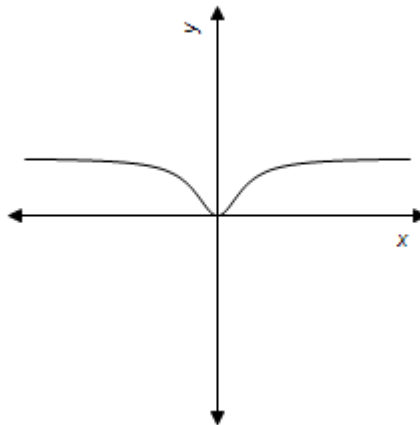
$$y \geq 1$$

a.



$$1 \leq x \leq 2$$

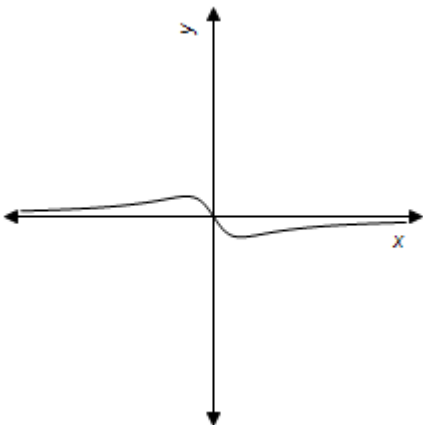
b.



$$x \leq -1$$

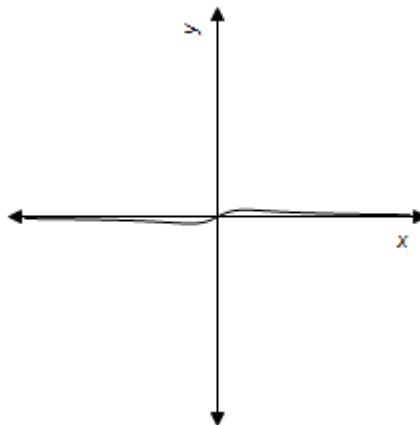
$$x \geq 1$$

c.



$$-2 \leq x \leq -1$$

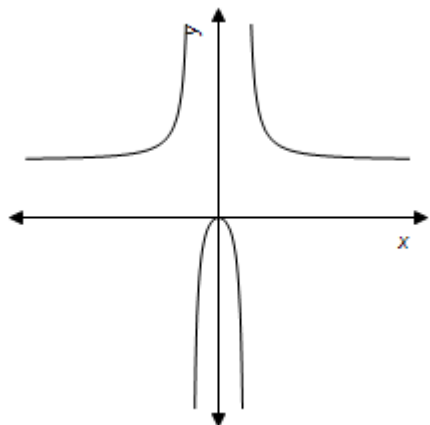
d.



No solutions exist.

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e.



$$x < -\sqrt{2}$$

$$x > \sqrt{2}$$

ANSWER: a
POINTS: 1
REFERENCES: 1.8.58a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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35. Find the domain of x in the expression.

$$\sqrt{25 - x^2}$$

- a. $(-25, 25)$
- b. $[-25, 25]$
- c. $(-5, 5)$
- d. $[-5, 25]$
- e. $[-5, 5]$

ANSWER: e
POINTS: 1
REFERENCES: 1.8.59
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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36. Find the domain of x in the expression.

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$$\sqrt{x^2 - 4}$$

- a. $(-\infty, 2] \cap [2, \infty)$
- b. $(-\infty, -2] \cup [2, \infty)$
- c. $(-\infty, -2] \cap [2, \infty)$
- d. $(-\infty, 2] \cup [2, \infty)$
- e. $(-\infty, -2) \cup [2, \infty)$

ANSWER: b
POINTS: 1
REFERENCES: 1.8.60
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 5/13/2015 8:46 AM

37. Find the domain of x in the expression.

$$\sqrt{x^2 - 5x + 6}$$

- a. $(-\infty, 2] \cup [3, \infty)$
- b. $(-\infty, 2] \cap [3, \infty)$
- c. $(-\infty, -3] \cup [-2, \infty)$
- d. $[2, 3]$
- e. $(-\infty, \infty)$

ANSWER: a
POINTS: 1
REFERENCES: 1.8.61
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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38. Find the domain of x in the expression.

$$\sqrt{16 - 9x^2}$$

- a. $(-\infty, \infty)$
- b. $(-\infty, -4/3] \cup [4/3, \infty)$

Section 1.8 - Other Types of Inequalities

c. $\left[-\frac{4}{3}, \frac{4}{3}\right]$

d. $\left[-\frac{3}{4}, \frac{3}{4}\right]$

e. $[0, \infty)$

ANSWER: c
POINTS: 1
REFERENCES: 1.8.62
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/17/2021 4:00 AM

39. Find the domain of x in the expression.

$$\sqrt{\frac{x}{x^2 - 2x - 24}}$$

- a. $(-4, 0] \cap (6, \infty)$
- b. $(-6, 0] \cup (4, \infty)$
- c. $(-4, 0] \cup (6, \infty)$
- d. $(-4, 0] \cup (-6, \infty)$
- e. $(-6, 0] \cap (-4, \infty)$

ANSWER: c
POINTS: 1
REFERENCES: 1.8.63
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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40. Find the domain of x in the expression.

$$\sqrt{\frac{x}{x^2 - 9}}$$

- a. $(-9, 0] \cup (9, \infty)$
- b. $(-3, 0] \cup [3, \infty)$
- c. $(-9, 0] \cap (3, \infty)$

Section 1.8 - Other Types of Inequalities

d. $(-3, 0] \cup (3, \infty)$

e. $(-9, 0] \cap [3, \infty)$

ANSWER: d
POINTS: 1
REFERENCES: 1.8.64
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/17/2021 4:06 AM

41. Use the position equation $s = -16t^2 + v_0t + s_0$, where s represents the height of an object (in feet), v_0 represents the initial velocity of the object (in feet per second), s_0 represents the initial height of the object (in feet), and t represents the time (in seconds).

A projectile is fired straight upward from ground level ($s_0 = 0$) with an initial velocity of 176 feet per second. At what instant will it be back at ground level?

a. $t = 11$ Sec

b. $t = 16$ Sec

c. $t = 13$ Sec

d. $t = 12$ Sec

e. $t = 10$ Sec

ANSWER: a
POINTS: 1
REFERENCES: 1.8.71a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
DATE MODIFIED: 6/17/2021 4:10 AM

42. Use the position equation $s = -16t^2 + v_0t + s_0$, where s represents the height of an object (in feet), v_0 represents the initial velocity of the object (in feet per second), s_0 represents the initial height of the object (in feet), and t represents the time (in seconds).

A projectile is fired straight upward from ground level ($s_0 = 0$) with an initial velocity of 160 feet per second. At what instant will it be back at ground level?

a. $t = 8$ Sec

b. $t = 10$ Sec

c. $t = 12$ Sec

d. $t = 11$ Sec

e. $t = 9$ Sec

Section 1.8 - Other Types of Inequalities

ANSWER: b
POINTS: 1
REFERENCES: 1.8.72a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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43. A rectangular playing field with a perimeter of 96 meters is to have an area of at least 407 square meters. Within what bounds must the length of the rectangle lie?

- a. $12m \leq L \leq 407m$
- b. $37m \leq L \leq 96m$
- c. $11m \leq L \leq 37m$
- d. $13m \leq L \leq 39m$
- e. $12m < L < 407m$

ANSWER: c
POINTS: 1
REFERENCES: 1.8.73
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
DATE CREATED: 6/10/2014 4:17 PM
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44. A rectangular parking lot with a perimeter of 440 feet is to have an area of at least 8004 square feet. Within what bounds must the length of the rectangle lie?

- a. $440ft \leq L \leq 8004ft$
- b. $48ft \leq L \leq 176ft$
- c. $49ft \leq L \leq 177ft$
- d. $47ft \leq L \leq 8004ft$
- e. $46ft \leq L \leq 174ft$

ANSWER: e
POINTS: 1
REFERENCES: 1.8.74
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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45. The numbers N (in millions) of students enrolled in schools in the United States from 1995 through 1997 are

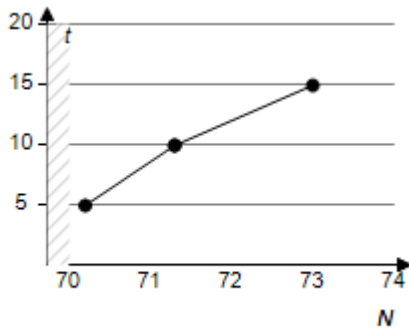
Section 1.8 - Other Types of Inequalities

shown in the table.

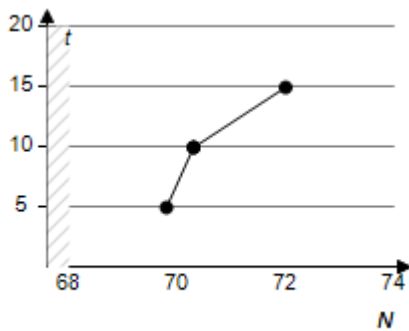
Year	Number, N
1995	70.2
1996	71.3
1997	73

Use a graphing utility to create a scatter plot of the data. Let t represent the year, with $t = 5$ corresponding to 1995, $t = 10$ corresponding to 1996, and $t = 15$ corresponding to 1997.

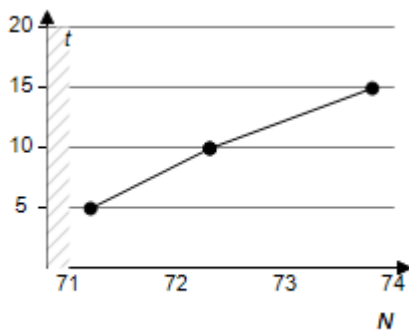
a.



b.

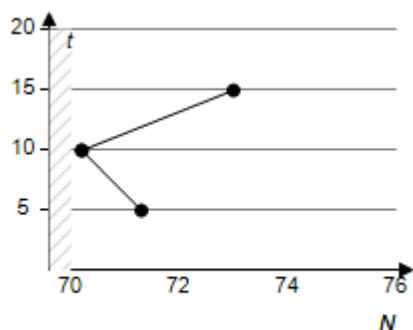


c.

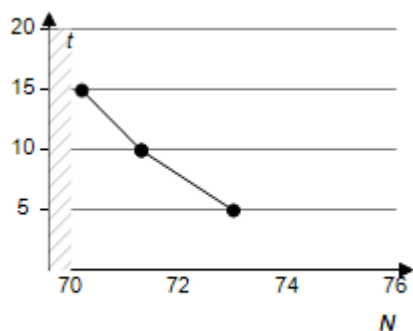


d.

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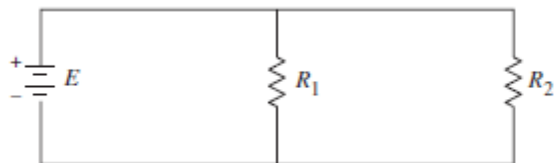
e.



ANSWER: a
 POINTS: 1
 REFERENCES: 1.8.77a
 QUESTION TYPE: Multi-Mode (Multiple choice)
 HAS VARIABLES: True
 STUDENT ENTRY MODE: Basic
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46. When two resistors of resistances R_1 and R_2 are connected in parallel (see figure), the total resistance R satisfies the equation

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2}.$$



Find R_1 for a parallel circuit in which $R_2 = 7$ ohms and R must be at least 1 ohm.

- a. $R_1 \leq 7$ ohms
- b. $R_1 < 7$ ohms
- c. $R_1 \geq \frac{7}{6}$ ohms

Section 1.8 - Other Types of Inequalities

d. $R_1 > 7$ ohms

e. $R_1 = \frac{7}{6}$ ohms

ANSWER: c
POINTS: 1
REFERENCES: 1.8.79
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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47. Determine whether the statement is true or false. Justify your answer.

The solution set of the inequality $\frac{7}{2}x^2 + 7x + 14 \geq 0$ is the entire set of real numbers.

- a. False, the y -values are less than zero for all values of x.
- b. True, the y -values are greater than zero for all values of x.

ANSWER: b
POINTS: 1
REFERENCES: 1.8.82
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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48. Find the interval(s) for b such that the following equation has at least one real solution

$$x^2 + bx + 6 = 0$$

- a. $(-\infty, -2\sqrt{6}] \cup [2\sqrt{6}, \infty)$
- b. $(-\infty, -2\sqrt{6}] \cap [2\sqrt{6}, \infty)$
- c. $(-\infty, -2\sqrt{6}) \cup (2\sqrt{6}, \infty)$
- d. $(-\infty, -2\sqrt{6}) \cup [-2\sqrt{6}, \infty)$
- e. $(-\infty, 2\sqrt{6}] \cap [2\sqrt{6}, \infty)$

ANSWER: a
POINTS: 1
REFERENCES: 1.8.83a
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic

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49. Find the interval(s) for b such that the following equation has at least one real solution and write a conjecture about the interval(s) based on the values of the coefficients

$$4x^2 + bx + 13 = 0$$

a. $(-\infty, -2\sqrt{52}] \cup [2\sqrt{52}, \infty)$

If $a > 0$ and $c > 0$, $b \leq -2\sqrt{ac}$ or $b \geq 2\sqrt{ac}$

b. $(-\infty, -2\sqrt{52}] \cup [-2\sqrt{52}, \infty)$

If $a > 0$ and $c < 0$, $b \leq -2\sqrt{ac}$ or $b \geq 2\sqrt{ac}$

c. $(-\infty, 2\sqrt{52}] \cup [2\sqrt{52}, \infty)$

If $a > 0$ and $c > 0$, b is all real numbers.

d. $(-\infty, 2\sqrt{52}] \cap [2\sqrt{52}, \infty)$

If $a < 0$ and $c > 0$, $b \leq -2\sqrt{ac}$ or $b \geq 2\sqrt{ac}$

e. $(-\infty, -2\sqrt{52}] \cap [2\sqrt{52}, \infty)$

If $a < 0$ and $c < 0$, b is all real numbers.

ANSWER: a

POINTS: 1

REFERENCES: 1.8.85

QUESTION TYPE: Multi-Mode (Multiple choice)

HAS VARIABLES: True

STUDENT ENTRY MODE: Basic

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50. Find the interval(s) for b such that the equation has at least one real solution and write a conjecture about the interval(s) based on the values of the coefficients

$$4x^2 + bx + 7 = 0$$

a. $(-\infty, -2\sqrt{28}] \cap [2\sqrt{28}, \infty)$

If $a > 0$ and $c < 0$, $b \geq -2\sqrt{ac}$

b. $(-\infty, -2\sqrt{28}] \cup [-2\sqrt{28}, \infty)$

If $a < 0$ and $c > 0$, $b \leq 2\sqrt{ac}$

c. $(-\infty, -2\sqrt{28}] \cup [2\sqrt{28}, \infty)$

If $a > 0$ and $c > 0$, $b \leq -2\sqrt{ac}$ or $b \geq 2\sqrt{ac}$

d. $(-\infty, 2\sqrt{28}] \cup [2\sqrt{28}, \infty)$

If $a > 0$ and $c > 0$, b is all real numbers

Section 1.8 - Other Types of Inequalities

e. $(-\infty, -2\sqrt{28}] \cap [2\sqrt{28}, \infty)$

If $a < 0$ and $c < 0$, $b \leq 2\sqrt{ac}$

ANSWER: c
POINTS: 1
REFERENCES: 1.8.86
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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51. Determine the intervals on which the following polynomial is entirely negative and those on which it is entirely positive.

$$-x^2 - 2x + 3$$

- a. entirely negative: $(-\infty, 2)$; entirely positive: $(2, \infty)$
- b. entirely negative: $(-\infty, -3)$, $(1, 2)$; entirely positive: $(-3, 1)$
- c. entirely negative: $(-\infty, -3)$, $(1, \infty)$; entirely positive: $(-3, 1)$
- d. entirely negative: $(-3, 2)$; entirely positive: $(2, \infty)$
- e. entirely negative: $(-\infty, 0)$; entirely positive: $(0, \infty)$

ANSWER: c
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 47-52
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.106 - Identify intervals where graph is entirely positive and/or negative
TOPICS: 2.6
KEYWORDS: 2.6.52
NOTES: Skill
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52. Solve: $x^2 - 2x - 15 < 0$.

- a. $(-\infty, -2)$
- b. $(-3, \infty)$
- c. $(-3, 5)$
- d. $(-\infty, 5)$
- e. $(5, \infty)$

ANSWER: c

Section 1.8 - Other Types of Inequalities

POINTS: 1
DIFFICULTY: Medium
REFERENCES: 53-62
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.104 - Solve inequality
TOPICS: 2.6
KEYWORDS: 2.6.60
NOTES: Skill
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53. Solve the inequality $36x - x^3 < 0$ and write the solution set in interval notation.

- a. $(-\infty, -6) \cup (0, 6)$
- b. $(-6, 6)$
- c. $(-\infty, 6)$
- d. $(-6, 0) \cup (6, \infty)$
- e. $(-\infty, \infty)$

ANSWER: d
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 53-62
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.104 - Solve inequality
TOPICS: 2.6
KEYWORDS: 2.6.61
NOTES: Skill
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54. Find the domain of x in the following expression.

$$\sqrt[3]{x^4 - 625}$$

- a. $[-5, 5]$
- b. $(-\infty, 5) \cup (5, \infty)$
- c. $[5, \infty)$
- d. $(5, \infty)$
- e. all real numbers

ANSWER: e

Section 1.8 - Other Types of Inequalities

POINTS: 1
DIFFICULTY: Medium
REFERENCES: 73-78
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.107 - Solve for the domain of an expression
TOPICS: 2.6
KEYWORDS: 2.6.76
NOTES: Skill
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55. Find the domain of x in the expression $\sqrt{16-x^2}$.

- a. $(-\infty, -4] \cup [4, \infty)$
- b. $(-\infty, 4]$
- c. $[-4, 4]$
- d. $[-4, \infty)$
- e. $(-\infty, \infty)$

ANSWER: c
POINTS: 1
DIFFICULTY: Medium
REFERENCES: 73-78
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
LEARNING OBJECTIVES: PREC.LARS.16.107 - Solve for the domain of an expression
TOPICS: 2.6
KEYWORDS: 2.6.73
NOTES: Skill
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56. Find the domain of x in the expression $\sqrt[4]{x^3-13x}$.

- a. $(-\infty, -\sqrt{13}] \cup [\sqrt{13}, \infty)$
- b. $(-\infty, \sqrt{13}] \cup [\sqrt{13}, \infty)$
- c. $[-\sqrt{13}, 0] \cup [\sqrt{13}, \infty)$
- d. $[-\sqrt{13}, \sqrt{13}]$
- e. $(-\infty, -\sqrt{13}) \cup (0, \sqrt{13})$

Section 1.8 - Other Types of Inequalities

ANSWER: c
POINTS: 1
QUESTION TYPE: Multi-Mode (Multiple choice)
HAS VARIABLES: True
STUDENT ENTRY MODE: Basic
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