# Test Bank for Beginning and Intermediate Algebra and College Algebra 1st Lial

Access Complete Test Bank for Beginning and Intermediate Algebra and College Algebra 1st Lial

**CHAPTER 2, FORM A**
**COLLEGE ALGEBRA**

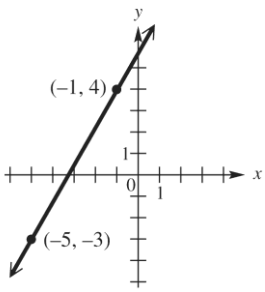
NAME_____
DATE_____

**1.** Match the set described in Column I with the correct interval notation from Column II. Choices in Column II may be used once, more than once, or not at all.

| I | II |
|---|---|
| **a.** Domain of $f(x)=\sqrt{x-3}$ | **A.** $(-\infty,\infty)$ |
| **b.** Range of $f(x)=\sqrt{x}-3$ | **B.** $[3,\infty)$ |
| **c.** Domain of $f(x)=x^2-16$ | **C.** $[0,2]$ |
| **d.** Range of $y=2x^2$ | **D.** $[0,\infty)$ |
| **e.** Domain of $f(x)=\sqrt[3]{x-2}$ | **E.** $[-3,3]$ |
| **f.** Range of $f(x)=\sqrt[3]{x}+2$ | **F.** $(-\infty,-2]$ |
| **g.** Domain of $f(x)=\lvert x+2\rvert$ | **G.** $[-3,\infty)$ |
| **h.** Range of $f(x)=\lvert x\rvert+3$ | **H.** $[-7,\infty)$ |
| **i.** Domain of $y=2s^2$ | |
| **j.** Range of $f(x)=x^2-7$ | |

**1. a.** _____
**b.** _____
**c.** _____
**d.** _____
**e.** _____
**f.** _____
**g.** _____
**h.** _____
**i.** _____
**j.** _____

*The graph shows the line that passes through the points $(-5,\ -3)$ and $(-1,\ 4)$. Refer to it to answer Exercises 2–6.*




**2.** What is the slope of the line? **2.** _____

**3.** What is the distance between the two points shown? **3.** _____

**4.** What are the coordinates of the midpoint of the *segment* joining the two points? **4.** _____

**5.** Find the standard form of the equation of the line. **5.** _____

**6.** Write the linear function defined by $f(x)=ax+b$ that has this line as its graph. **6.** _____

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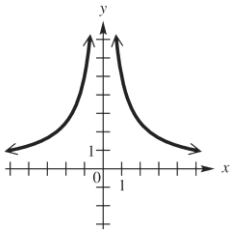
**CHAPTER 2, FORM A**

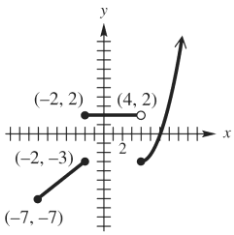
*Tell whether each graph is that of a function. Give the domain and the range. If it is a function, give the intervals where it is increasing, decreasing, or constant.*

**7.**




**7.** _____

**8.**




**8.** _____

**9.** Suppose point $P$ has coordinates $\left(\frac{2}{5}, \frac{3}{7}\right)$.

**a.** What is the equation of the vertical line through $P$?

**b.** What is the equation of the horizontal line through $P$?

**9. a.** _____

**b.** _____

**10.** Find the slope-intercept form of the equation of the line passing through (2, 5) and

**a.** parallel to the graph of $y = 4x - 7$;

**b.** perpendicular to the graph of $y = 4x - 7$.

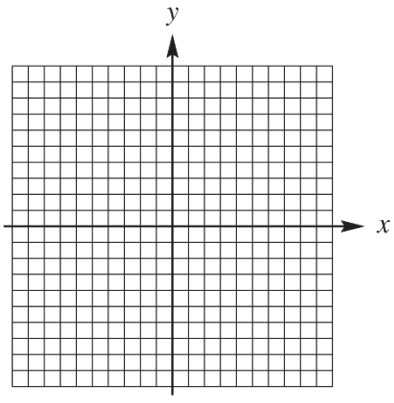
**10. a.** _____

**b.** _____

*Graph each relation.*

**11.** $x = 2|y - 3| + 1$

**11.**

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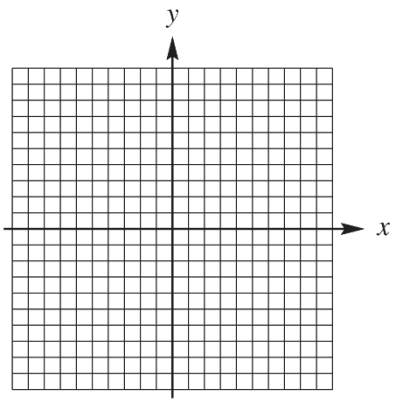
**CHAPTER 2, FORM A**

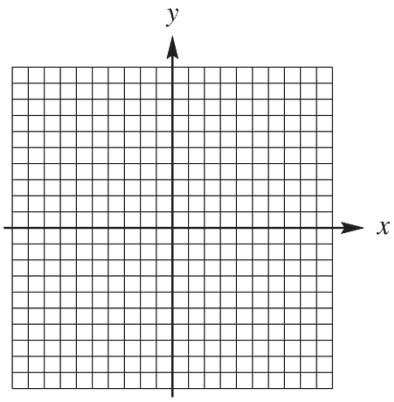
**12.** $f(x) = |x| + 2$

**12.**




**13.** $f(x) = \begin{cases} 2x - 1 & \text{if } x < 0 \\ -3x - 1 & \text{if } x \geq 0 \end{cases}$

**13.**




**14.** Explain how the graph of $y = -\frac{1}{2}\sqrt{x+3} + 5$ can be obtained from the graph of $y = \sqrt{x}$.

**14.** _____

**15.** Determine whether the graph of $2x^2 + 3y^2 = 1$ is symmetric with respect to

**a.** the $x$-axis,

**b.** the $y$-axis,

**c.** the origin.

**15. a.** _____

**b.** _____

**c.** _____

*Given* $f(x) = x^2 - 1$ *and* $g(x) = 2x + 1$, *find each of the following. Simplify the expressions when possible.*

**16.** $(fg)(x)$

**16.** _____

**17.** $(f + g)(x)$

**17.** _____

**18.** the domain of $\frac{g}{f}$

**18.** _____

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**CHAPTER 2, FORM A**

**19.** $\dfrac{f(x+h)-f(x)}{h}$ **19.** _____

**20.** $(f-g)(0)$ **20.** _____

**21.** $\left(\dfrac{f}{g}\right)(2)$ **21.** _____

**22.** $(f \circ g)(x)$ **22.** _____

**23.** $(f \circ g)(-2)$ **23.** _____

**24.** $(g \circ f)(x)$ **24.** _____

**25.** $(g \circ f)(-2)$ **25.** _____

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**CHAPTER 2, FORM B**
**COLLEGE ALGEBRA**

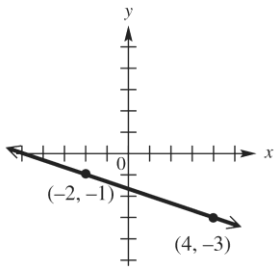
NAME_____
DATE_____

**1.** Match the set described in Column I with the correct interval notation from Column II. Choices in Column II may be used once, more than once, or not at all.

| I | II |
|---|---|
| **a.** Domain of $f(x)=\sqrt{x-4}$ | **A.** $(-\infty,\infty)$ |
| **b.** Range of $f(x)=\sqrt{x}-2$ | **B.** $[-2,\infty)$ |
| **c.** Domain of $f(x)=3x^2$ | **C.** $[0,2]$ |
| **d.** Range of $f(x)=x^2+5$ | **D.** $[0,\infty)$ |
| **e.** Domain of $f(x)=\sqrt[3]{x-8}$ | **E.** $[-3,3]$ |
| **f.** Range of $f(x)=\sqrt[3]{x}-1$ | **F.** $(-\infty,-2]$ |
| **g.** Domain of $f(x)=\lvert x-2\rvert$ | **G.** $[5,\infty)$ |
| **h.** Range of $f(x)=\lvert x\rvert+5$ | **H.** $[4,\infty)$ |
| **i.** Domain of $x=2y^2$ | |
| **j.** Range of $x=2y^2$ | |

**1. a.** _____
**b.** _____
**c.** _____
**d.** _____
**e.** _____
**f.** _____
**g.** _____
**h.** _____
**i.** _____
**j.** _____

*The graph shows the line that passes through the points (−2, −1) and (4, −3). Refer to it to answer Exercises 2–6.*




**2.** What is the slope of the line? **2.** _____

**3.** What is the distance between the two points shown? **3.** _____

**4.** What are the coordinates of the midpoint of the *segment* joining the two points? **4.** _____

**5.** Find the standard form of the equation of the line. **5.** _____

**6.** Write the linear function defined by $f(x)=ax+b$ that has this line as its graph. **6.** _____

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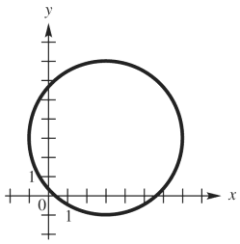
**CHAPTER 2, FORM B**

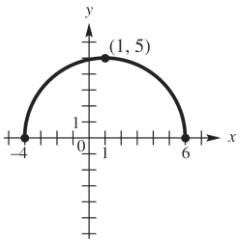
*Tell whether each graph is that of a function. Give the domain and the range. If it is a function, give the intervals where it is increasing, decreasing, or constant.*

**7.**




**7.** _____

**8.**

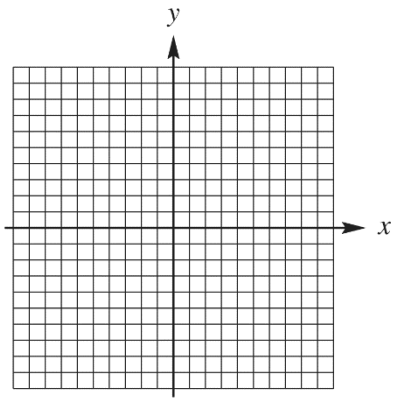



**8.** _____

*Graph each relation.*

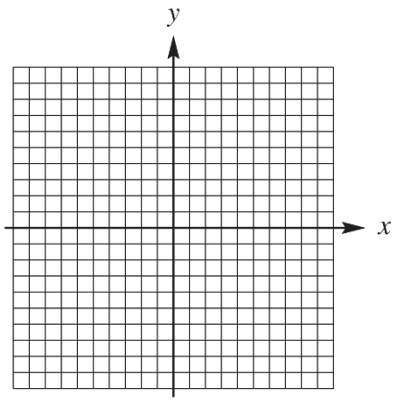
**9.** $f(x) = 2 - |3x|$

**9.**




**10.** $f(x) = \left|\frac{1}{2}x\right|$

**10.**

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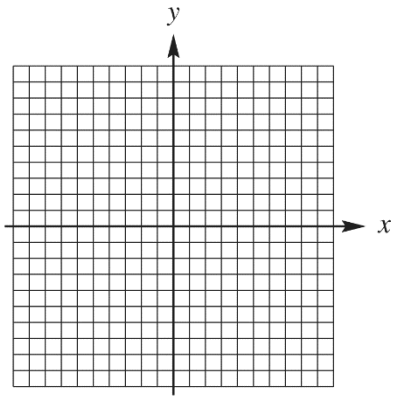
**CHAPTER 2, FORM B**

**11.** $f(x) = \begin{cases} -2x & \text{if } x < -3 \\ 4 & \text{if } -3 \le x \le 2 \\ x - 4 & \text{if } x \ge 2 \end{cases}$

**11.**




**12.** Suppose point $P$ has coordinates $\left(\frac{5}{8}, -\frac{7}{9}\right)$.

**a.** What is the equation of the vertical line through $P$? **12. a.** _____

**b.** What is the equation of the horizontal line through $P$? **b.** _____

**13.** Find the slope-intercept form of the equation of the line passing through $(-6, 3)$ and

**a.** parallel to the graph of $y = -3x - 12$; **13. a.** _____

**b.** perpendicular to the graph of $y = -3x - 12$. **b.** _____

**14.** Explain how the graph of $y = -\frac{1}{3}\sqrt{x+4} + 2$ can be obtained from the graph of $y = \sqrt{x}$. **14.** _____

**15.** Determine whether the graph of $y^2 = 3x$ is symmetric with respect to **15. a.** _____

**a.** the $x$-axis, **b.** _____

**b.** the $y$-axis, **c.** _____

**c.** the origin.

*Given* $f(x) = 2x^2 + 7x + 6$ *and* $g(x) = 3x - 2$, *find each of the following. Simplify the expressions when possible.*

**16.** $(fg)(x)$ **16.** _____

**17.** $(f - g)(x)$ **17.** _____

**18.** the domain of $\frac{g}{f}$ **18.** _____

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**19.** $\dfrac{f(x+h)-f(x)}{h}$ **19.** _____

**20.** $(f+g)(1)$ **20.** _____

**21.** $\left(\dfrac{g}{f}\right)(0)$ **21.** _____

**22.** $(f \circ g)(x)$ **22.** _____

**23.** $(f \circ g)(1)$ **23.** _____

**24.** $(g \circ f)(x)$ **24.** _____

**25.** $(g \circ f)(1)$ **25.** _____

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**CHAPTER 2, FORM C**
**COLLEGE ALGEBRA**

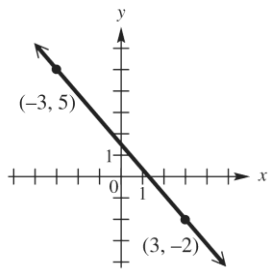
NAME_____
DATE_____

**1.** Match the set described in Column I with the correct interval notation from Column II. Choices in Column II may be used once, more than once, or not at all.

| I | II |
|---|---|
| **a.** Domain of $f(x)=\sqrt{x+2}$ | **A.** $(-\infty,\infty)$ |
| **b.** Range of $f(x)=\sqrt{x}-4$ | **B.** $[-4,\infty)$ |
| **c.** Domain of $f(x)=x^2-1$ | **C.** $[0,2]$ |
| **d.** Range of $f(x)=x^2-16$ | **D.** $[0,\infty)$ |
| **e.** Domain of $f(x)=\sqrt[3]{x-2}$ | **E.** $[-3,3]$ |
| **f.** Range of $f(x)=\sqrt[3]{x}+2$ | **F.** $(-\infty,-3]$ |
| **g.** Domain of $f(x)=\lvert x+3\rvert$ | **G.** $[-1,\infty)$ |
| **h.** Range of $f(x)=\lvert x\rvert-3$ | **H.** $[-2,\infty)$ |
| **i.** Domain of $y=2x^2$ | |
| **j.** Range of $y=x^2-3$ | |

**1. a.** _____
**b.** _____
**c.** _____
**d.** _____
**e.** _____
**f.** _____
**g.** _____
**h.** _____
**i.** _____
**j.** _____

*The graph shows the line that passes through the points $(-3,-5)$ and $(3,-2)$. Refer to it to answer Exercises 2–6.*




**2.** What is the slope of the line? **2.** _____

**3.** What is the distance between the two points shown? **3.** _____

**4.** What are the coordinates of the midpoint of the *segment* joining the two points? **4.** _____

**5.** Find the standard form of the equation of the line. **5.** _____

**6.** Write the linear function defined by $f(x)=ax+b$ that has this line as its graph. **6.** _____

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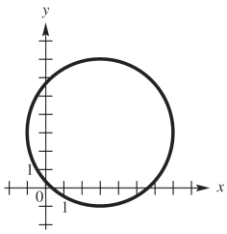
**CHAPTER 2, FORM C**

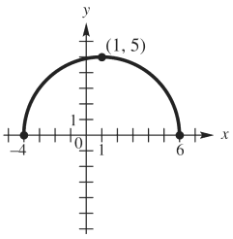
*Tell whether each graph is that of a function. Give the domain and the range. If it is a function, give the intervals where it is increasing, decreasing, or constant.*

**7.**




**7.** _____

**8.**




**8.** _____

**9.** Suppose point $P$ has coordinates $\left(2\sqrt{2}, -\sqrt{5}\right)$.

**a.** What is the equation of the vertical line through $P$?

**b.** What is the equation of the horizontal line through $P$?

**9. a.** _____

**b.** _____

**10.** Find the slope-intercept form of the equation of the line passing through $(4, -2)$ and

**a.** parallel to the graph of $x = \frac{5}{4}y - 2$;

**b.** perpendicular to the graph of $x = \frac{5}{4}y - 2$;

**10. a.** _____

**b.** _____

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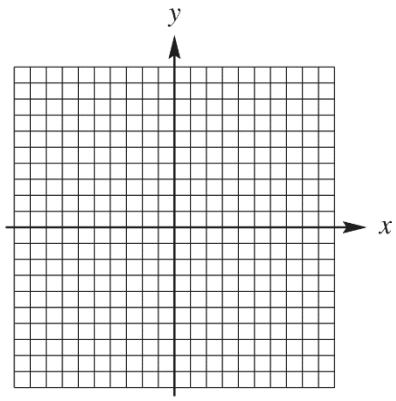
**CHAPTER 2, FORM C**

*Graph each relation.*

**11.** $f(x) = \frac{1}{2}|x+1| - 2$

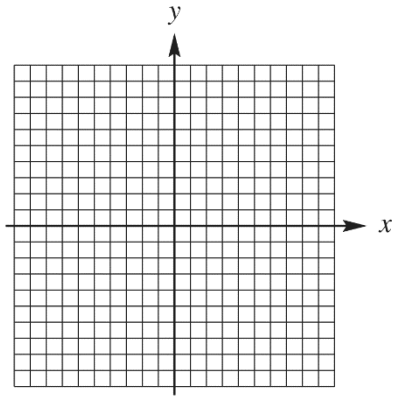
**11.**




**CHAPTER 2, FORM A**

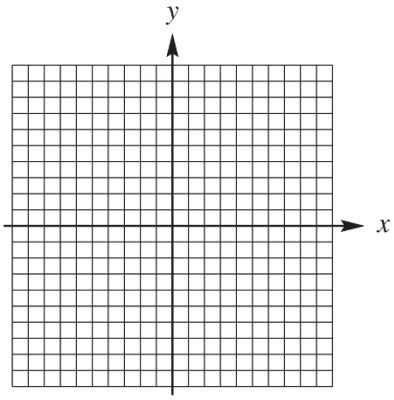
**12.** $f(x) = 2x - 2$

**12.**




**13.** $f(x) = \begin{cases} x+1 & \text{if } x \le -2 \\ -1 & \text{if } x > -2 \end{cases}$

**13.**

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**CHAPTER 2, FORM C**

**14.** Explain how the graph of $y = 3|x+4|+2$ can be obtained from the graph of $y = |x|$.

**14.** _____

**15.** Determine whether the graph of $y = 3x^2 + 7$ is symmetric with respect to

**a.** the $x$-axis,

**b.** the $y$-axis,

**c.** the origin.

**15. a.** _____

**b.** _____

**c.** _____

*Given* $f(x) = 3x^2 - 2$ *and* $g(x) = 4x + 4$, *find each of the following. Simplify the expressions when possible.*

**16.** $(fg)(x)$ **16.** _____

**17.** $(g - f)(x)$ **17.** _____

**18.** $f(-2)$ **18.** _____

**19.** $\dfrac{f(x+h) - f(x)}{h}$ **19.** _____

**20.** $(f + g)(0)$ **20.** _____

**21.** $\left(\dfrac{f}{g}\right)(-2)$ **21.** _____

**22.** $(f - g)(x)$ **22.** _____

**23.** $(f \circ g)(x)$ **23.** _____

**24.** $(g \circ f)(x)$ **24.** _____

**25.** $(g \circ f)(0)$ **25.** _____

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**CHAPTER 2, FORM D**
**COLLEGE ALGEBRA**

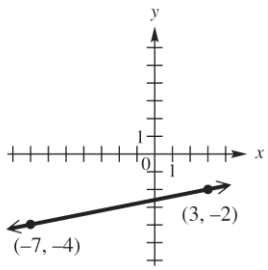
NAME_____
DATE_____

**1.** Match the set described in Column I with the correct interval notation from Column II. Choices in Column II may be used once, more than once, or not at all.

| I | II |
|---|---|
| **a.** Domain of $f(x)=\sqrt{x+1}$ | **A.** $(-\infty,-1]$ |
| **b.** Range of $f(x)=\sqrt{x}+1$ | **B.** $(-\infty,\infty)$ |
| **c.** Domain of $f(x)=x^2-25$ | **C.** $[0,2]$ |
| **d.** Range of $f(x)=x^2-1$ | **D.** $[0,\infty)$ |
| **e.** Domain of $f(x)=\sqrt[3]{x-2}$ | **E.** $[-3,3]$ |
| **f.** Range of $f(x)=\sqrt[3]{x}+2$ | **F.** $[-3,\infty)$ |
| **g.** Domain of $f(x)=\lvert x+4\rvert$ | **G.** $[-1,\infty)$ |
| **h.** Range of $f(x)=\lvert x\rvert-4$ | **H.** $[-4,\infty)$ |
| **i.** Domain of $y=2x^2$ | |
| **j.** Range of $y=x^2-4$ | |

**1. a.** _____
**b.** _____
**c.** _____
**d.** _____
**e.** _____
**f.** _____
**g.** _____
**h.** _____
**i.** _____
**j.** _____

*The graph shows the line that passes through the points $(-7,-4)$ and $(3,-2)$. Refer to it to answer Exercises 2–6.*




**2.** What is the slope of the line? **2.** _____

**3.** What is the distance between the two points shown? **3.** _____

**4.** What are the coordinates of the midpoint of the *segment* joining the two points? **4.** _____

**5.** Find the standard form of the equation of the line. **5.** _____

**6.** Write the linear function defined by $f(x)=ax+b$ that has this line as its graph. **6.** _____

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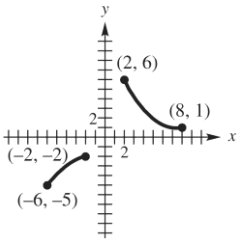
**CHAPTER 2, FORM D**

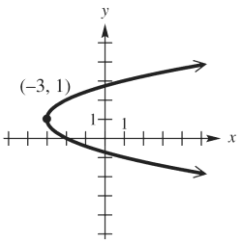
*Tell whether each graph is that of a function. Give the domain and the range. If it is a function, give the intervals where it is increasing, decreasing, or constant.*

**7.**




**7.** _____

**8.**

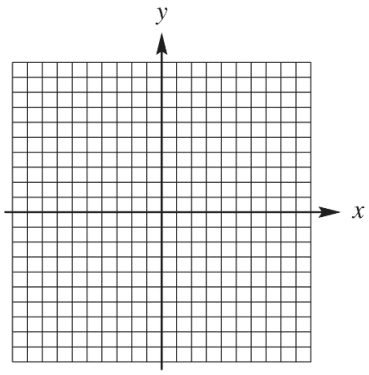



**8.** _____

*Graph each relation.*

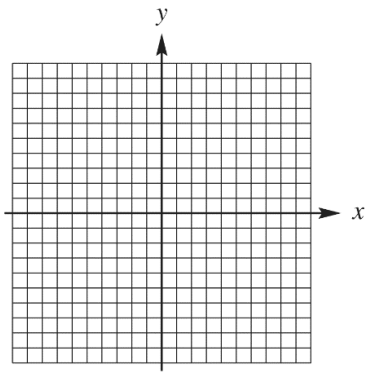
**9.** $f(x) = 3 + |x + 1|$

**9.**




**10.** $f(x) = \begin{cases} -x \text{ if } x < 0 \\ 2x \text{ if } x \geq 0 \end{cases}$

**10.**

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**CHAPTER 2, FORM D**

**11.** Suppose point $P$ has coordinates $(-3, 2.1)$.

**a.** What is the equation of the vertical line through $P$? **11. a.** _____

**b.** What is the equation of the horizontal line through $P$? **b.** _____

**12.** Find the slope-intercept form of the equation of the line passing through $(1, -5)$ and

**a.** parallel to the graph of $x = -\frac{3}{4}y + 5$; **12. a.** _____

**b.** perpendicular to the graph of $x = -\frac{3}{4}y + 5$; **b.** _____

**13.** Find the slope of the line through points $(11, -5)$ and $(-8, 6)$. **13.** _____
from the graph of $y = \sqrt{x}$.

**14.** Explain how the graph of $y = 3\sqrt{x-4} - 2$ can be obtained **14.** _____
from the graph of $y = \sqrt{x}$.

**15.** Determine whether the graph of $xy = -4$ is symmetric **15. a.** _____
with respect to **b.** _____

**a.** the $x$-axis, **c.** _____

**b.** the $y$-axis,

**c.** the origin.

*Given* $f(x) = 2x^3 - 3x - 1$ *and* $g(x) = 2x + 1$, *find each of the following. Simplify the expressions when possible.*

**16.** $(f+g)(x)$ **16.** _____

**17.** $\left(\frac{f}{g}\right)(x)$ **17.** _____

**18.** $f(0)$ **18.** _____

**19.** $\frac{f(x+h) - f(x)}{h}$ **19.** _____

**20.** $(g-f)(0)$ **20.** _____

**21.** $(fg)(-1)$ **21.** _____

**22.** $(f \circ g)(x)$ **22.** _____

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**CHAPTER 2, FORM D**

**23.** $(f \circ g)(2)$ **23.** _____

**24.** $(g \circ f)(x)$ **24.** _____

**25.** $(g \circ f)(2)$ **25.** _____

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**CHAPTER 2, FORM E**
**COLLEGE ALGEBRA**

NAME_____
DATE_____

*Choose the best answer.*

**1a.** Which of the following is the domain of $f(x) = \sqrt{3} - x$? **1a.** _____

**a.** $[0, 3]$ **b.** $(-\infty, 3]$

**c.** $[3, \infty)$ **d.** $(-\infty, \infty)$

**1b.** Which of the following is the range of $f(x) = x^2 - 49$? **1b.** _____

**a.** $[-49, \infty)$ **b.** $[-7, \infty)$

**c.** $[-7, 7]$ **d.** $[0, \infty)$

**1c.** Which of the following is the domain of $f(x) = \sqrt[3]{x+7}$? **1c.** _____

**a.** $(-\infty, \infty)$ **b.** $(-\infty, 6]$

**c.** $[0, \infty)$ **d.** $[6, \infty)$

**1d.** Which of the following is the range of $f(x) = |x| + 1$? **1d.** _____

**a.** $[-1, 1]$ **b.** $[0, 1]$

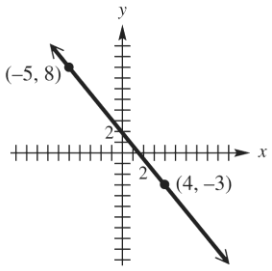
**c.** $[0, \infty)$ **d.** $[1, \infty)$

**1e.** Which of the following is the domain of $x = y^2$? **1e.** _____

**a.** $(-\infty, \infty)$ **b.** $[0, \infty)$

**c.** $(0, \infty)$ **d.** $(-\infty, 0]$

*The graph shows the line that passes through* $(-5, 8)$ *and* $(4, -3)$. *Refer to it to answer Exercises 2-6.*




**2.** What is the slope of the line? **2.** _____

**a.** $-\frac{13}{7}$ **b.** $\frac{11}{9}$

**c.** $-\frac{11}{9}$ **d.** $0$

**3.** What is the distance between the two points shown? **3.** _____

**a.** $\sqrt{26}$ **b.** $2\sqrt{5}$

**c.** $\sqrt{202}$ **d.** $\sqrt{122}$

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**CHAPTER 2, FORM E**

**4.** What are the coordinates of the midpoint of the segment joining the two points? **4.** _____

**a.** $\left(-\frac{1}{2}, \frac{5}{2}\right)$ **b.** $\left(-\frac{9}{2}, \frac{11}{2}\right)$

**c.** $\left(\frac{3}{2}, \frac{1}{2}\right)$ **d.** $(-1, 5)$

**5.** Find the standard form of the equation of the line. **5.** _____

**a.** $11x + 9y = 127$ **b.** $11x - 9y = 17$

**c.** $11x + 9y = 17$ **d.** $11x - 9y = 127$

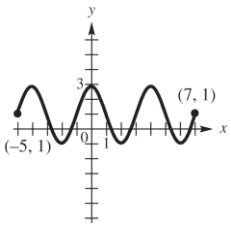
**6.** Find the standard form of the equation of the line. **6.** _____

**a.** $f(x) = \frac{11}{9}x - \frac{17}{9}$ **b.** $f(x) = -\frac{11}{9}x + \frac{17}{9}$

**c.** $f(x) = \frac{11}{9}x + \frac{127}{9}$ **d.** $f(x) = \frac{11}{9}x - \frac{127}{9}$

*Tell whether each graph is that of a function. Give the domain and range.*

**7.** **7.** _____



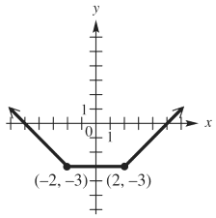

**a.** Function; domain: $[-5, 7]$; range: $[-1, 3]$

**b.** Function; domain: $(-\infty, \infty)$; range: $[-1, 3]$

**c.** Function; domain: $[-1, 3]$; range: $[-5, 7]$

**d.** Not a function; domain: $[-5, 7]$; range: $[-1, 3]$

**8.** **8.** _____




**a.** Not a function; domain: $(-\infty, \infty)$; range: $[-2, \infty)$

**b.** Not a function; domain: $[-5, 5]$; range: $[-3, \infty)$

**c.** Function; domain: $(-\infty, \infty)$; range: $[-2, \infty)$

**d.** Function; domain: $(-\infty, \infty)$; range: $[-3, \infty)$

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**CHAPTER 2, FORM E**

**9.** Suppose point $P$ has coordinates $(-6,1)$. **9.** _____
What is the equation of the horizontal line through $P$?

**a.** $x=-6$ **b.** $y=1$
**c.** $x=1$ **d.** $y=6$

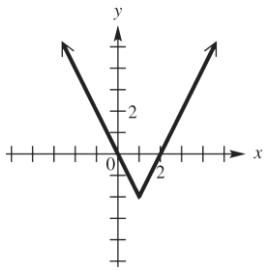
**10.** Find the slope-intercept form of the equation of the line passing. **10.** _____
through $(-2,5)$ perpendicular to the graph of $y=-\frac{1}{8}x+\frac{19}{4}$.

**a.** $y=8x+21$ **b.** $y=\frac{1}{3}x-3$
**c.** $y=-8x-13$ **d.** $y=-\frac{1}{3}x+3$

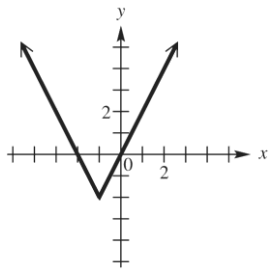
*Graph each function.*

**11.** $f(x)=2|x-1|-2$ **11.** _____

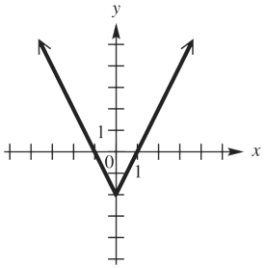
**a.**



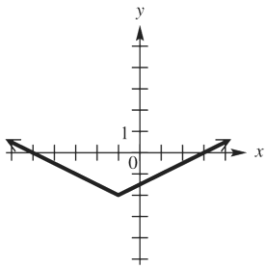

**b.**




**c.**




**d.**

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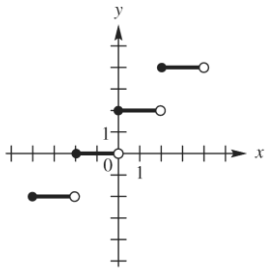
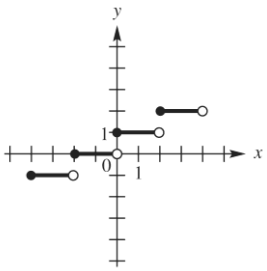
**CHAPTER 2, FORM E**

**12.** $f(x) = \left\lfloor \frac{1}{2}x \right\rfloor$ **12.** _____

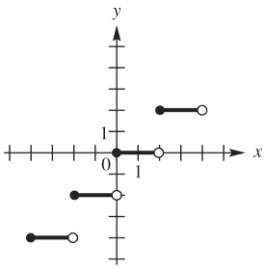
**a.**



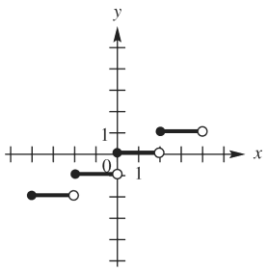

**b.**




**c.**

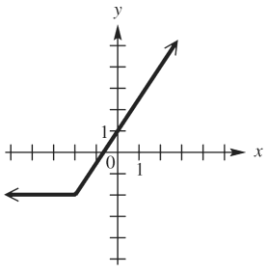



**d.**

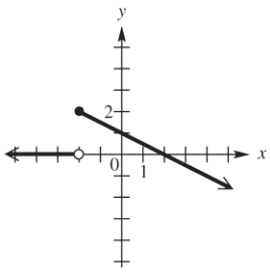



**13.** $f(x) = \begin{cases} 2 & \text{if } x < -2 \\ -\frac{1}{2}x + 1 & \text{if } x \geq -2 \end{cases}$ **13.** _____

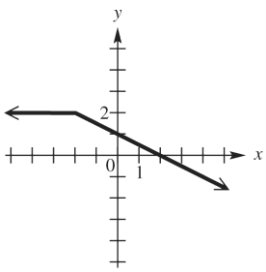
**a.**



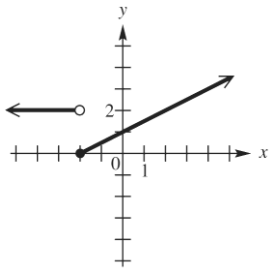

**b.**




**c.**




**d.**

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**CHAPTER 2, FORM E**

**14.** Explain how the graph of $y = \sqrt{x+2} - 5$ can be obtained from the graph of $y = \sqrt{x}$. **14.** _____

**a.** Translate 2 unit to the right and 5 units up.
**b.** Translate 2 unit to the right and 5 units down.
**c.** Translate 2 unit to the left and 5 units up.
**d.** Translate 2 unit to the left and 5 units down.

**15.** Determine the symmetries of the graph of the relation $x^2 - 2xy + y^2 = 5$. **15.** _____

**a.** *x*-axis only **b.** *y*-axis only
**c.** origin only **d.** *x*-axis, *y*-axis, and origin

*Given* $f(x) = 5x - 4$ *and* $g(x) = x^2 + 3$, *find each of the following. Simplify the expressions when possible.*

**16.** $(fg)(x)$ **16.** _____

**a.** $x^3 + 4x^2 - 12$ **b.** $5x^3 - 4x^2 + 15x - 12$
**c.** $5x^3 + 4x^2 + 3x - 12$ **d.** $-5x^3 + 4x^2 - 5x - 12$

**17.** $(g - f)(x)$ **17.** _____

**a.** $x^2 - 5x + 7$ **b.** $x^2 + 5x - 7$
**c.** $-x^2 - 5x + 1$ **d.** $x^2 + 5x + 1$

**18.** The domain of $\frac{g}{f}$ **18.** _____

**a.** $\left(-\infty, \frac{4}{5}\right) \cup \left(\frac{4}{5}, \infty\right)$ **b.** $\left(-\infty, \frac{5}{4}\right) \cup \left(\frac{5}{4}, \infty\right)$
**c.** $\left(-\infty, \frac{1}{3}\right) \cup \left(\frac{1}{3}, \infty\right)$ **d.** $(-\infty, \infty)$

**19.** $\frac{f(x+h) - f(x)}{h}$ **19.** _____

**a.** $h$ **b.** 5
**c.** $5x + 2h$ **d.** $5x + 2h - 4$

**20.** $(f + g)(-1)$ **20.** _____

**a.** $-1$ **b.** $-5$
**c.** 2 **d.** 5

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**CHAPTER 2, FORM E**

**21.** $\left(\frac{f}{g}\right)(0)$ **21.** _____

**a.** $-\frac{3}{4}$ **b.** $\frac{1}{4}$

**c.** $-\frac{4}{3}$ **d.** $\frac{15}{2}$

**22.** $(g \circ f)(x)$ **22.** _____

**a.** $25x^2 + 40x - 19$ **b.** $25x^2 - 40x + 19$

**c.** $25x^2 - 40x - 19$ **d.** $25x^2 + 40x + 19$

**23.** $(g \circ f)(1)$ **22.** _____

**a.** –6 **b.** 4

**c.** 0 **d.** 1

**24.** $(f \circ g)(x)$ **24.** _____

**a.** $5x^2 - 11$ **b.** $5x^2 + 11$

**c.** $5x^2 + 19$ **d.** $5x^2 - 12$

**25.** $(f \circ g)(0)$ **25.** _____

**a.** $-1$ **b.** 0

**c.** 11 **d.** 15

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**CHAPTER 2, FORM F**
**COLLEGE ALGEBRA**

NAME_____
DATE_____

*Choose the best answer.*

**1a.** Which of the following is the domain of $f(x) = \sqrt{x-1}$? **1a.** _____

**a.** $[0,1]$ **b.** $(-\infty, 1]$

**c.** $[1, \infty)$ **d.** $(-\infty, \infty)$

**1b.** Which of the following is the range of $f(x) = x^2 - 4$? **1b.** _____

**a.** $[-2, \infty)$ **b.** $[-4, \infty)$

**c.** $[-4, 4]$ **d.** $[0, \infty)$

**1c.** Which of the following is the domain of $f(x) = \sqrt[3]{x-7}$? **1c.** _____

**a.** $(-\infty, \infty)$ **b.** $(-\infty, 3]$

**c.** $[0, \infty)$ **d.** $[3, \infty)$

**1d.** Which of the following is the range of $f(x) = |x| + 2$? **1d.** _____

**a.** $[-2, 2]$ **b.** $[0, 2]$

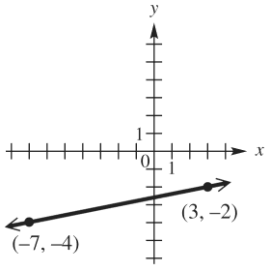
**c.** $[2, \infty)$ **d.** $[0, \infty)$

**1e.** Which of the following is the domain of $x = y^2$? **1e.** _____

**a.** $(-\infty, \infty)$ **b.** $[0, \infty)$

**c.** $(0, \infty)$ **d.** $(-\infty, 0]$

*The graph shows the line that passes through* $(-7, -4)$ *and* $(3, -2)$. *Refer to it to answer Exercises 2-6.*




**2.** What is the slope of the line? **2.** _____

**a.** 0 **b.** $-\frac{1}{5}$

**c.** $\frac{1}{5}$ **d.** 5

**3.** What is the distance between the two points shown? **3.** _____

**a.** $\sqrt{122}$ **b.** $2\sqrt{26}$

**c.** $2\sqrt{13}$ **d.** $2\sqrt{34}$

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**CHAPTER 2, FORM F**

**4.** What are the coordinates of the midpoint of the *segment* joining the two points? **4.** _____

**a.** $\left(\frac{1}{2}, -\frac{11}{2}\right)$ **b.** $(-2, -1)$

**c.** $(-5, -1)$ **d.** $(-2, -3)$

**5.** Find the standard form of the equation of the line. **5.** _____

**a.** $5x - y = 17$ **b.** $5x + y = -17$

**c.** $x - 5y = 13$ **d.** $x + 5y = -13$

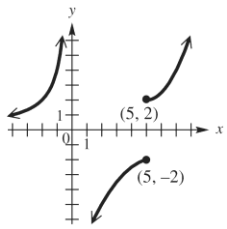
**6.** Find the standard form of the equation of the line. **6.** _____

**a.** $f(x) = \frac{1}{5}x - \frac{13}{5}$ **b.** $f(x) = -5x + 17$

**c.** $f(x) = 5x - 17$ **d.** $f(x) = \frac{1}{5}x + \frac{13}{5}$

*Tell whether each graph is that of a function. Give the domain and range.*

**7.** **7.** _____



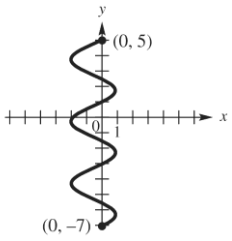

**a.** not a function; domain: $(-\infty, 0) \cup (0, \infty)$; range: $(-\infty, -2] \cup (0, \infty)$

**b.** not a function; domain: $(-\infty, \infty)$; range: $(-\infty, \infty)$

**c.** not a function; domain: $(-\infty, 0) \cup (0, \infty)$; range: $(-\infty, \infty)$

**d.** not a function; domain: $(-\infty, 0) \cup (0, \infty)$; range: $(-\infty, -2] \cup (2, \infty)$

**8.** **8.** _____




**a.** not a function; domain: $[-2, 1]$; range: $(-\infty, \infty)$

**b.** not a function; domain: $[-7, 5]$; range: $[-2, 1]$

**c.** not a function; domain: $[-7, 5]$; range: $(-\infty, \infty)$

**d.** not a function; domain: $[-2, 1]$; range: $[-7, 5]$

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**CHAPTER 2, FORM F**

**9.** Suppose point $P$ has coordinates $(-3, 6)$. **9.** _____

What is the equation of the horizontal line through $P$?

**a.** $x = -3$ **b.** $y = -3$

**c.** $x = 6$ **d.** $y = 6$

**10.** Find the slope-intercept form of the equation of the line passing. **10.** _____

through $(1, 2)$ perpendicular to the graph of $y = -\frac{1}{8}x + \frac{1}{3}$.

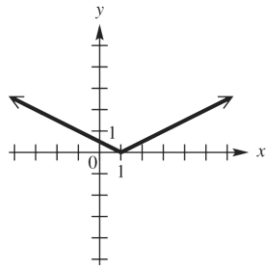
**a.** $y = 8x - 3$ **b.** $y = \frac{1}{8}x - \frac{1}{3}$

**c.** $y = -8x + 3$ **d.** $y = -\frac{1}{8}x + \frac{17}{8}$

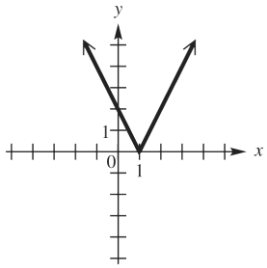
Graph each relation.

**11.** $f(x) = \frac{1}{2}|x + 1|$ **11.** _____

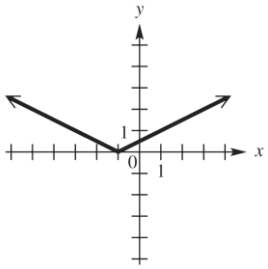
**a.**



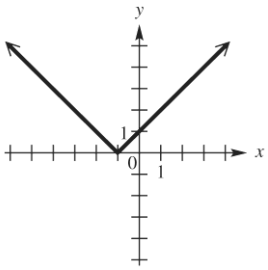

**b.**




**c.**




**d.**

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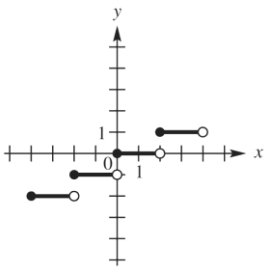
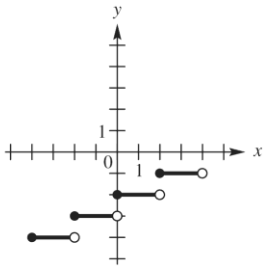
**CHAPTER 2, FORM F**

**12.** $f(x) = \left|\frac{1}{2}x\right| - 2$ **12.** _____

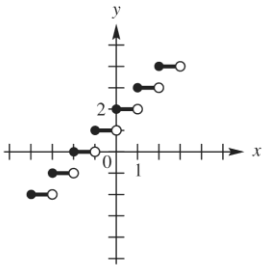
**a.**



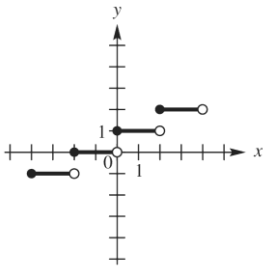

**b.**




**c.**

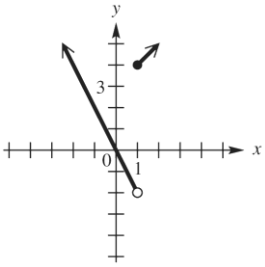



**d.**

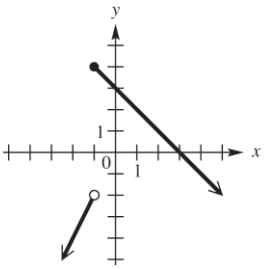



**13.** $f(x) = \begin{cases} -2x & \text{if } x < -1 \\ x + 3 & \text{if } x \geq -1 \end{cases}$ **13.** _____

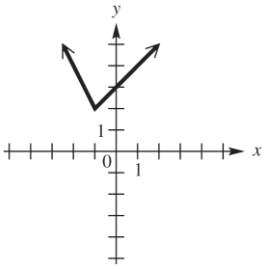
**a.**



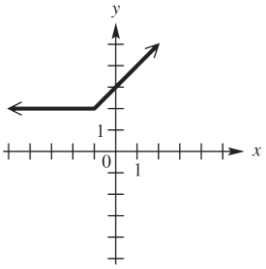

**b.**




**c.**




**d.**




**14.** Explain how the graph of $y = \sqrt{x+3} + 1$ can be obtained from the graph of $y = \sqrt{x}$. **14.** _____

**a.** Translate 3 units to the right and 1 units up.
**b.** Translate 3 units to the right and 1 units down.
**c.** Translate 3 units to the left and 1 units up.
**d.** Translate 3 units to the left and 1 units down.

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**CHAPTER 2, FORM F**

**15.** Determine the symmetries of the graph of the relation $4x^2 + 9y^2 = 36$. **15.** _____

**a.** *x*-axis only **b.** *y*-axis only
**c.** Origin only **d.** *x*-axis, *y*-axis, and origin

*Given* $f(x) = 6x^2 + 5x - 6$ *and* $g(x) = 2x - 8$, *find each of the following. Simplify the expressions when possible.*

**16.** $f(-3)$ **16.** _____

**a.** $-9$ **b.** 21
**c.** 33 **d.** 51

**17.** $\dfrac{f(x+h) - f(x)}{h}$ **17.** _____

**a.** $12x + 6h + 5$ **b.** $12x - 6h - 5$
**c.** $-12x = 6h + 5$ **d.** $-12x + 6h - 5$

**18.** $(f \circ g)\left(\dfrac{3}{2}\right)$ **18.** _____

**a.** $-131$ **b.** 119
**c.** $-181$ **d.** 169

**19.** $(f + g)(x)$ **19.** _____

**a.** $6x^2 + 7x - 14$ **b.** $6x^2 - 7x - 14$
**c.** $6x^2 + 7x - 2$ **d.** $6x^2 - 3x - 2$

**20.** $(f + g)(0)$ **20.** _____

**a.** $-15$ **b.** $-14$
**c.** $-27$ **d.** 1

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