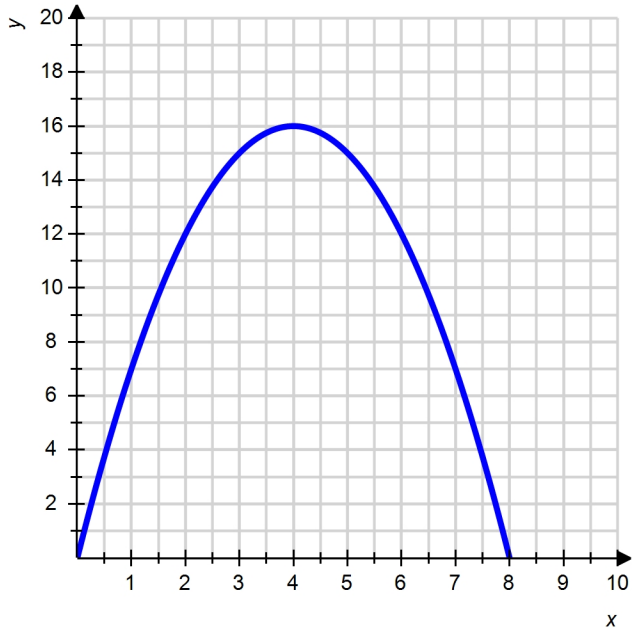
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1.2 Functions and Models

1. Use the graph of the function f to find $f(1)$.



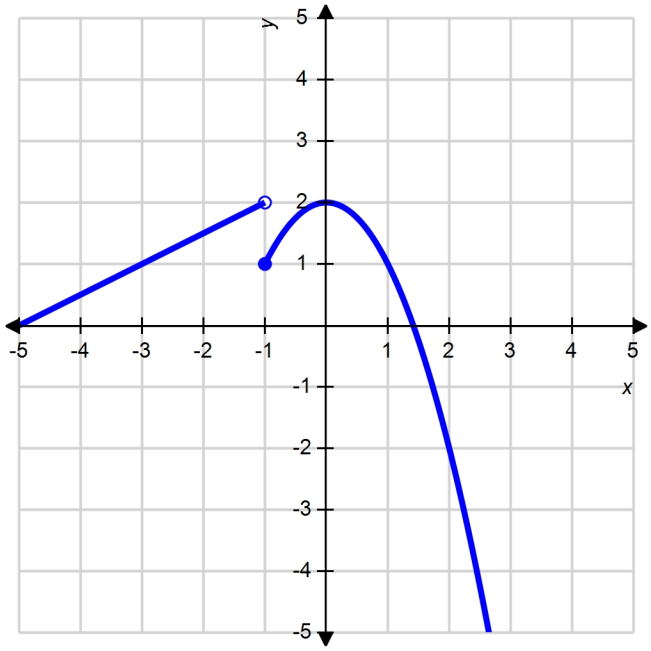
a. 10
b. 7
c. 5
d. 3
e. 6

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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2. Use the graph of the function f to find $f(-1)$.



a. 1
b. –1
c. 2
d. 2.5
e. 3

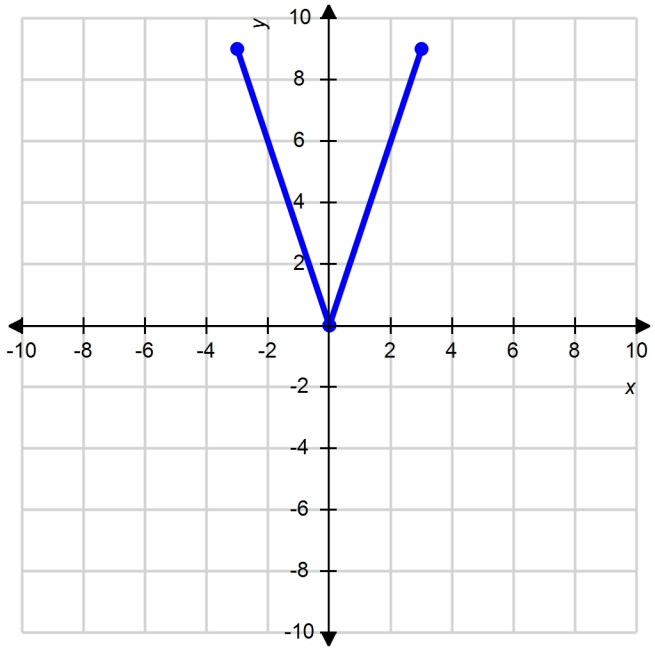
ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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3. Choose the graph of the function $f(x) = 3x, (-3 \le x \le 3)$ from the following:

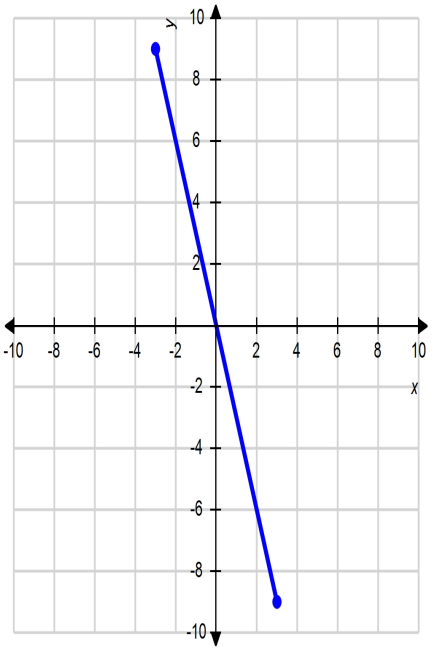
a. b.

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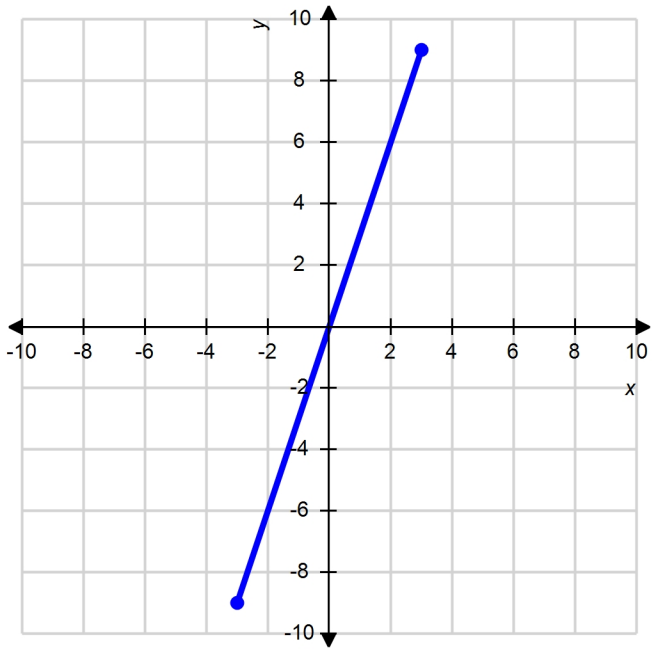
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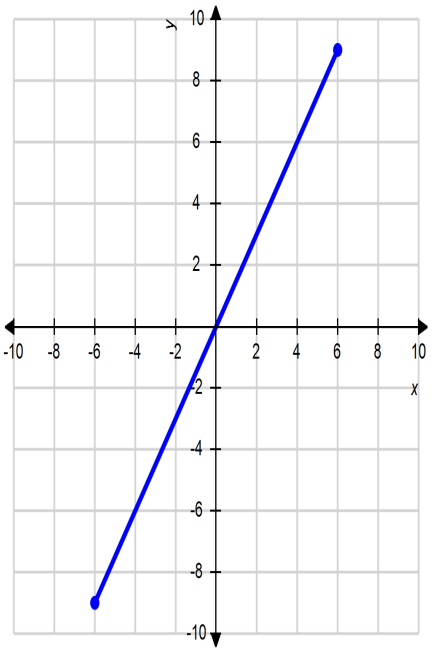


c.



d.





ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True

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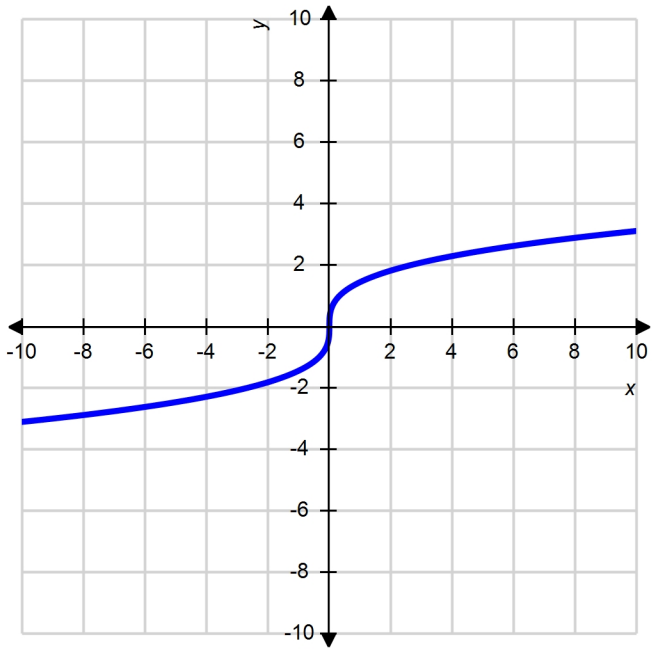
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1.2 Functions and Models

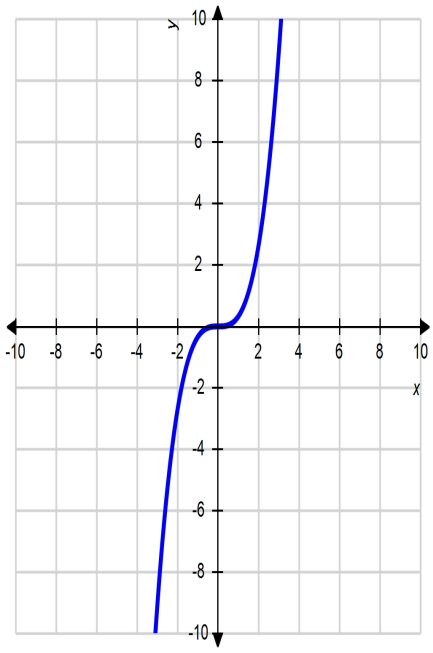
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4. Choose the graph of the function $f(x) = -\frac{x^3}{3}$, domain $(-\infty, \infty)$ from the following:

a.



b.

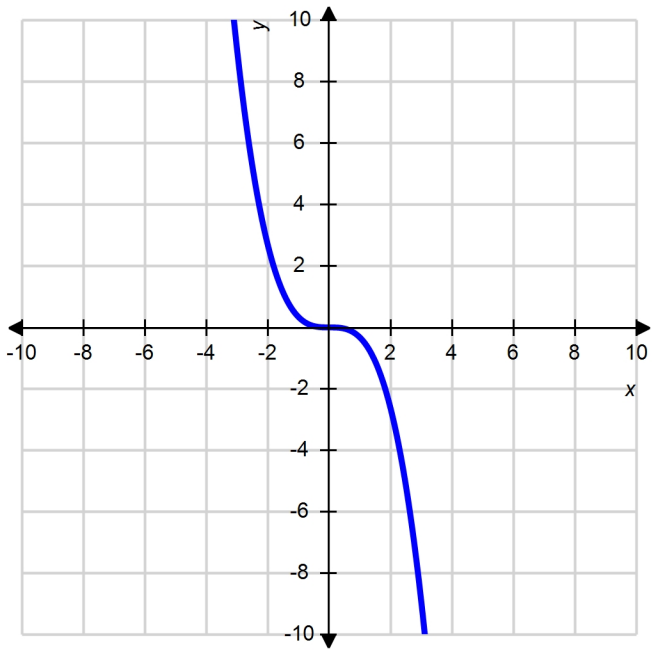


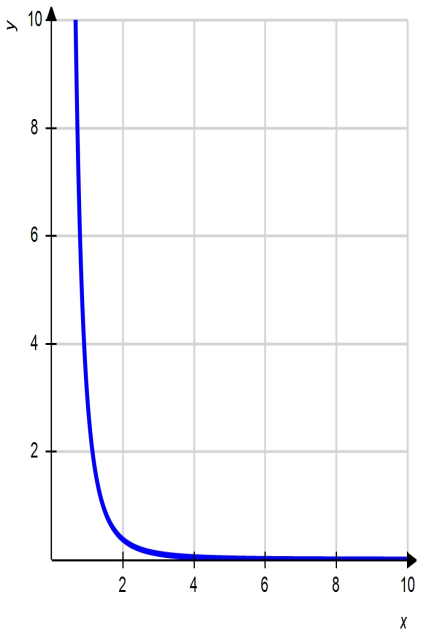
c.

d.

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ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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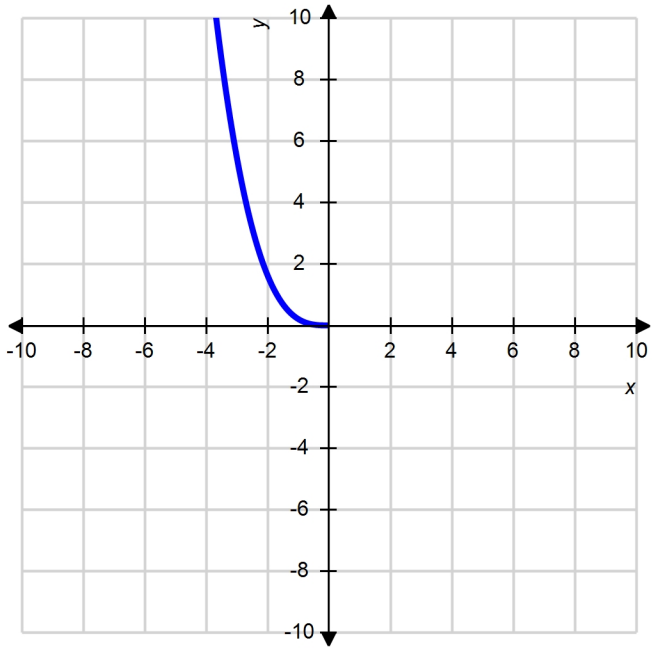
5. Choose the graph of the function $f(x) = \frac{x^3}{5}$, domain $[0, \infty)$ from the following:

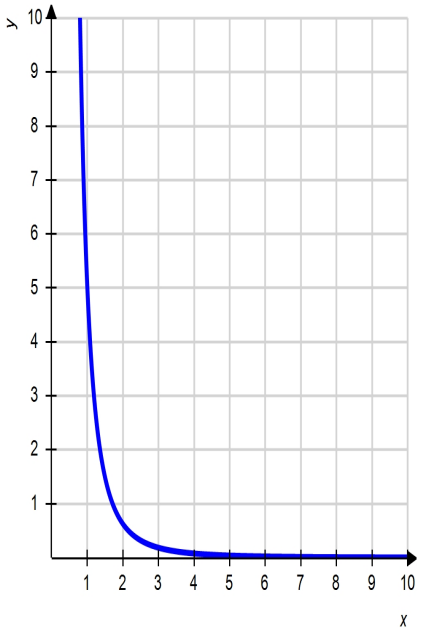
a.

b.

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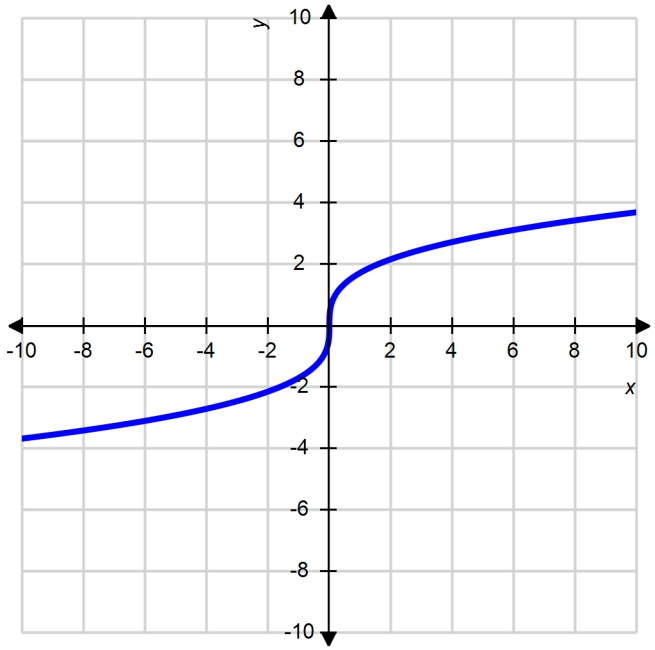
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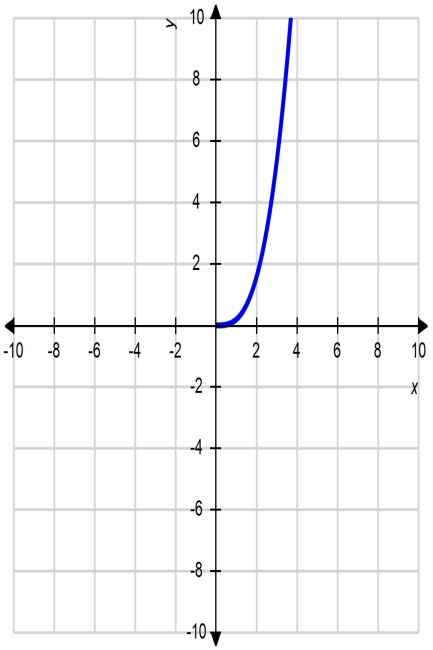




c.

d.





ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True

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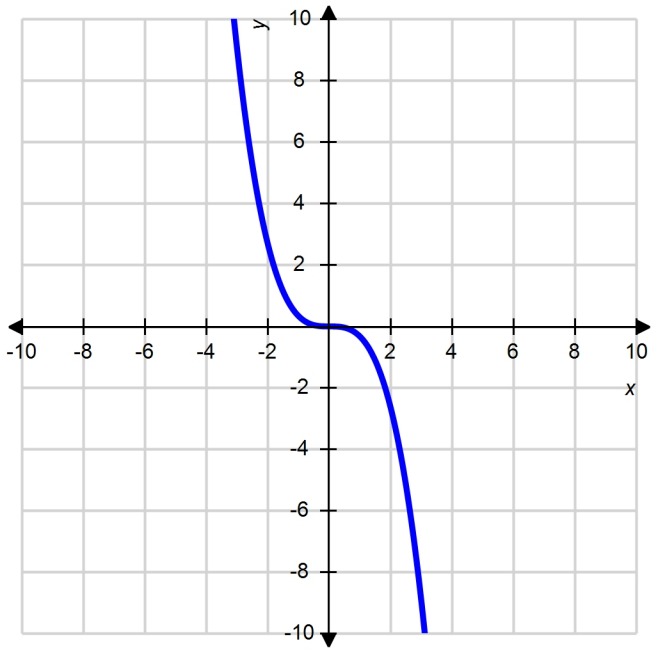
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1.2 Functions and Models

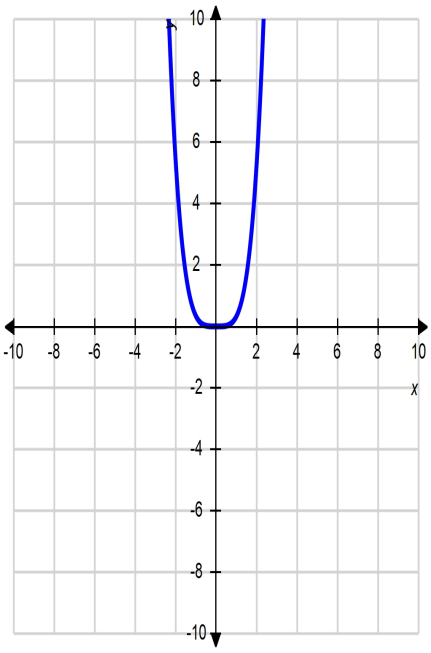
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6. Choose the graph of the function $f(x) = \frac{x^4}{3}$, domain $(-\infty, \infty)$ from the following:

a.



b.

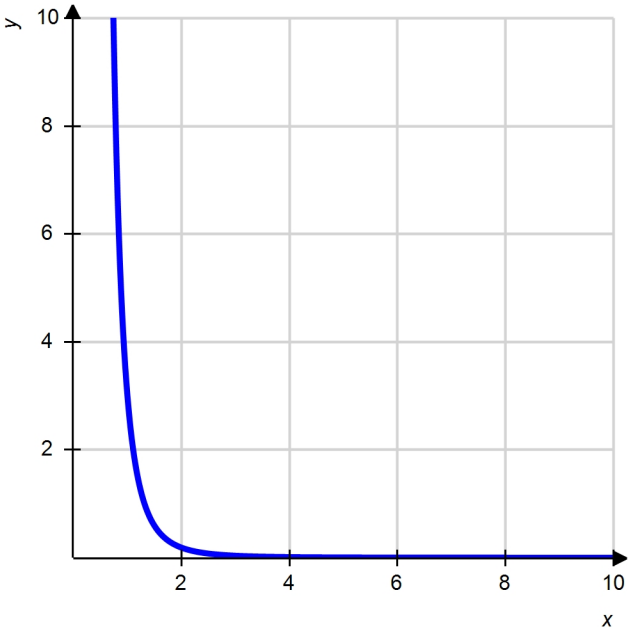


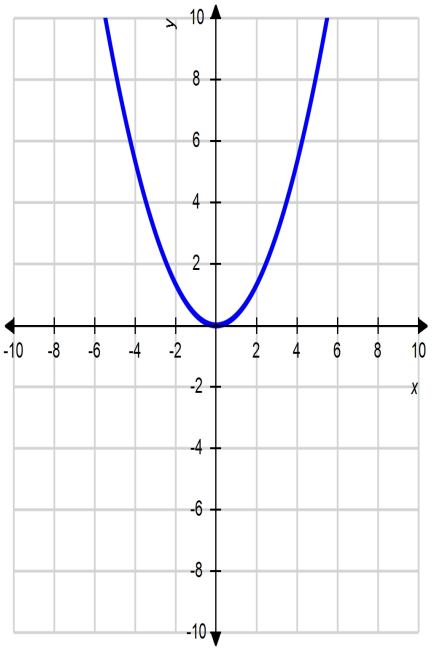
c.

d.

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ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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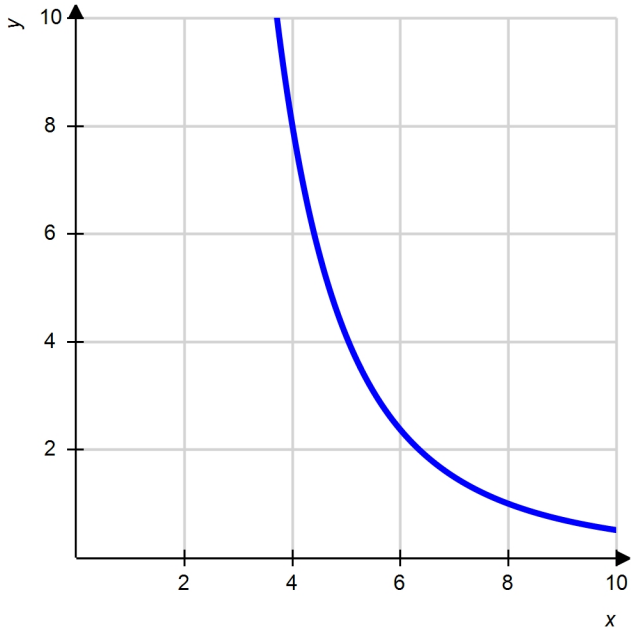
7. Choose the graph of the function $f(x) = 8\sqrt[3]{x}$, domain $(-\infty, \infty)$ from the following:

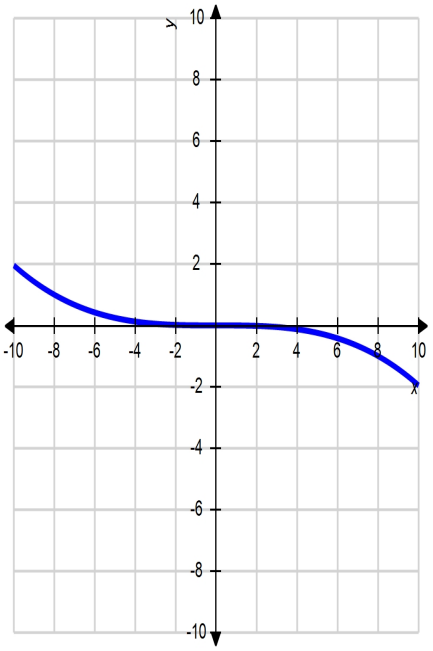
a.

b.

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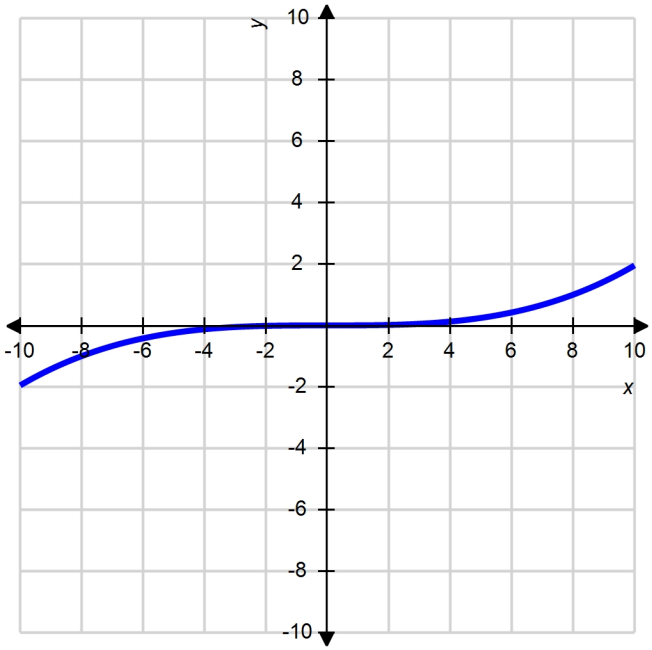
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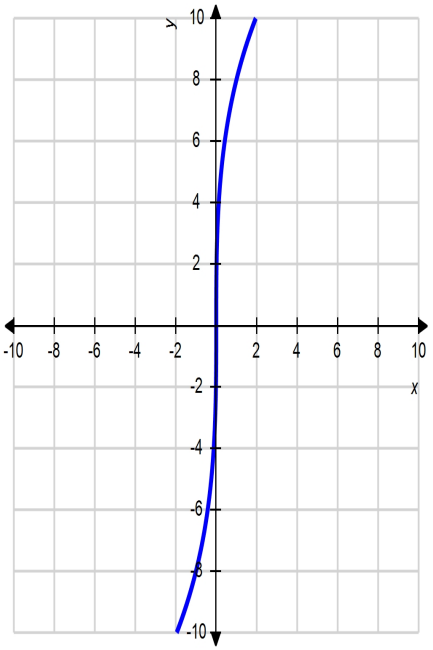




c.

d.





ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice

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HAS VARIABLES: True
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8. Function f is $f(x) = \begin{cases} 6x & \text{if } 0 \le x < 7 \\ 1 & \text{if } 7 \le x < 14 \end{cases}$.

Find $f(12)$.

a. 72
b. 1
c. 78
d. 66
e. 84

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 2/10/2016 3:48 PM
DATE MODIFIED: 10/24/2016 1:41 AM

9. Function f is $f(x) = \begin{cases} -6 & \text{if } 0 \le x < 9 \\ -6x & \text{if } 9 \le x < 18 \end{cases}$.

Find $f(3)$.

a. –18
b. –6
c. 18
d. –18
e. 9

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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1.2 Functions and Models

10. Function f is $f(x)=\begin{cases} 7x & \text{if } 0<x<10 \\ x+8 & \text{if } 10\le x<20 \\ 7x & \text{if } 20\le x\le 30 \end{cases}$.

Find $f(14)$.

a. 22
b. 20
c. 29
d. 32
e. 14

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 2/10/2016 3:48 PM
DATE MODIFIED: 10/24/2016 1:42 AM

11. Function f is $f(x)=\begin{cases} x^2 & \text{if } -16<x\le 0 \\ \sqrt{x} & \text{if } 0<x\le 41 \end{cases}$.

Find $f(36)$.

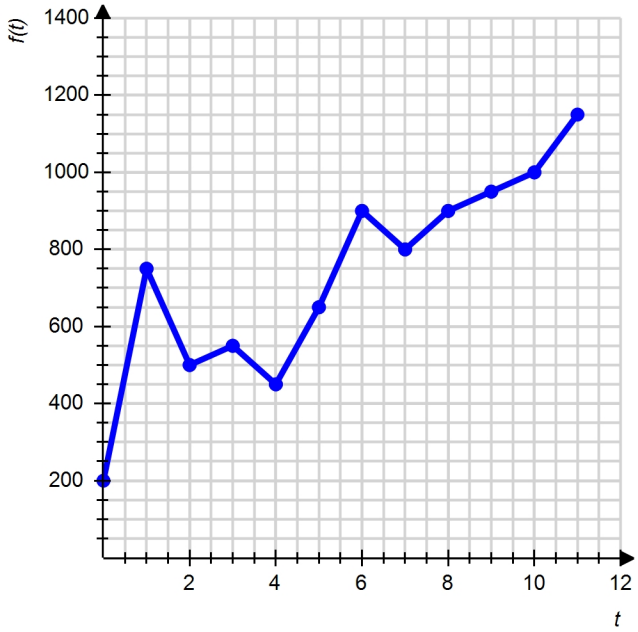
a. 1296
b. 6
c. 7
d. –6
e. No solution

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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12. Graph shows the number of sports utility vehicles $f(t)$ sold in the United States. $f(t)$ represents sales in year t in thousands of vehicles. Find $f(10)$.



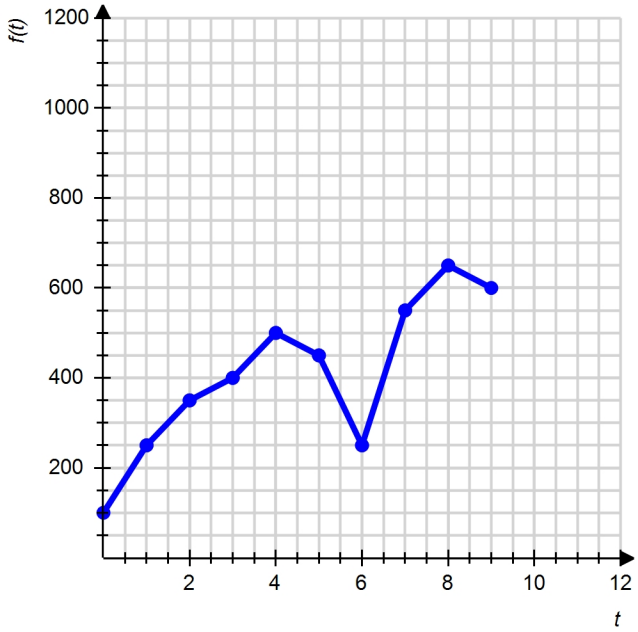
a. 1,000,000
b. 750,000
c. 450,000
d. 1,150,000
e. 950,000

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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13. Graph shows the number of sports utility vehicles $f(t)$ sold in the United States. $f(t)$ represents sales in year t in thousands of vehicles. Find $f(4)$.



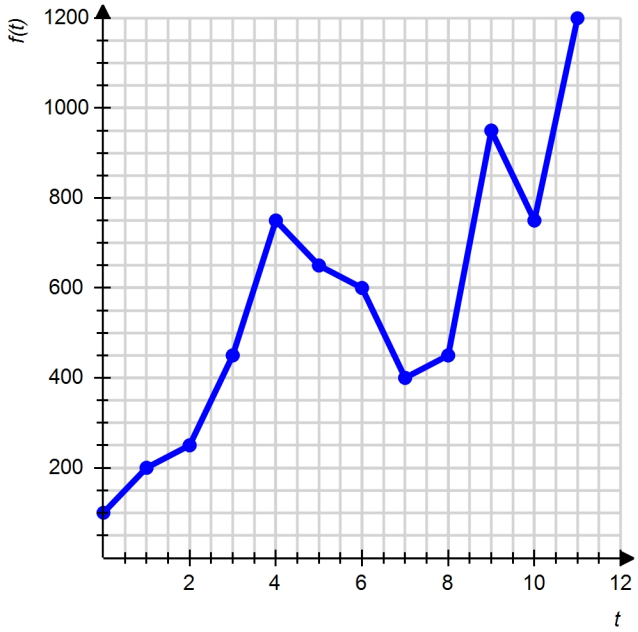
a. 400,000
b. 500,000
c. 450,000
d. 250,000
e. 600,000

ANSWER: b
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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14. Graph shows the number of sports utility vehicles $f(t)$ sold in the United States. $f(t)$ represents sales in year t in thousands of vehicles. Use the graph to estimate the largest value of $f(t)$ for $(2 \le t \le 5)$.



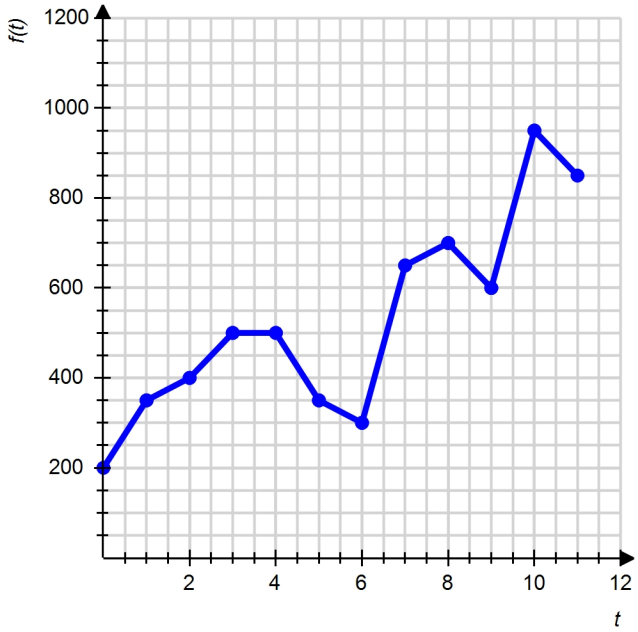
a. 950,000
b. 650,000
c. 1,200,000
d. 750,000
e. 600,000

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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15. Graph shows the number of sports utility vehicles $f(x)$ sold in the United States. $f(x)$ represents sales in year t in thousands of vehicles. Use the graph to estimate the smallest value of $f(x)$ for $2 \le t \le 9$.



a. 300,000
b. 350,000
c. 850,000
d. 600,000
e. 500,000

ANSWER: a
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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16. The following table shows the approximate value V of one Euro in U.S dollars from its introduction in January 2000 to January 2004. ($t = 0$ represents January, 2000.)

***t* (Year)**	0	2	4
***V* (Value in $)**	1.00	0.90	1.25

Which model would best fit the given data? (A, a, b, c, k, l, and m are constants.)

a. Logarithmic: $V(t) = k \cdot \ln(l \cdot t)$

b. Cubic: $a \cdot (t + b)^3 + c$

c. Linear: $V(t) = m \cdot t + b$

d. Quadratic: $V(t) = a \cdot t^2 + b \cdot t + c$

e. Exponential: $V(t) = A^{b \cdot t}$

ANSWER: d
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
DATE CREATED: 2/10/2016 3:48 PM
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17. The following table shows the approximate average household income in the U.S. in 1990, 2002, and 2003. ($t = 0$ represents 1990.)

***t* (Year)**	0	12	13
***H* (Household Income in $1000)**	30	42	43

Which of the following kinds of models would best fit the given data? (A, a, b, c, and m are constants.)

a. Exponential: $V(t) = A^{b \cdot t}$

b. Logarithmic: $V(t) = A \cdot \ln(b \cdot t)$

c. Linear: $V(t) = m \cdot t + b$

d. Quadratic: $V(t) = a \cdot t^2 + b \cdot t + c$

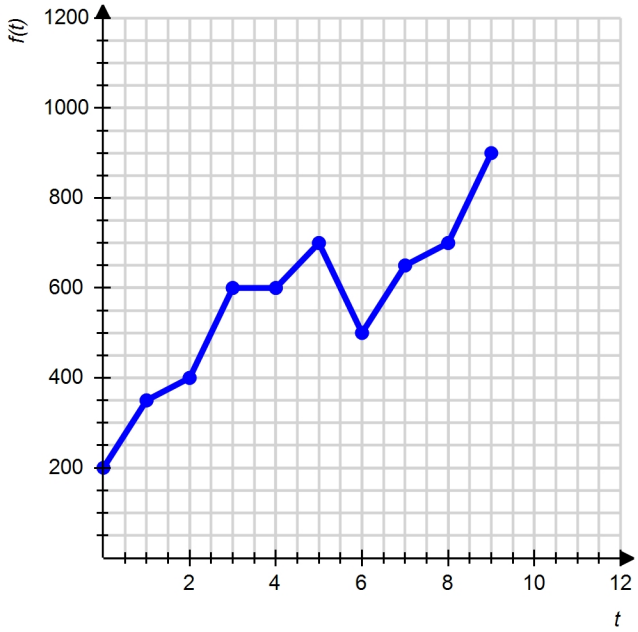
e. Power: $V(t) = a \cdot (t + b)^4 + c$

ANSWER: c
POINTS: 1
QUESTION TYPE: Multiple Choice
HAS VARIABLES: True
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18. Graph shows the number of sports utility vehicles $f(t)$ sold in the United States. $f(t)$ represents sales in year t in thousands of vehicles. Use the graph to estimate the largest value of $f(t)$ for $(0 \le t \le 5)$.



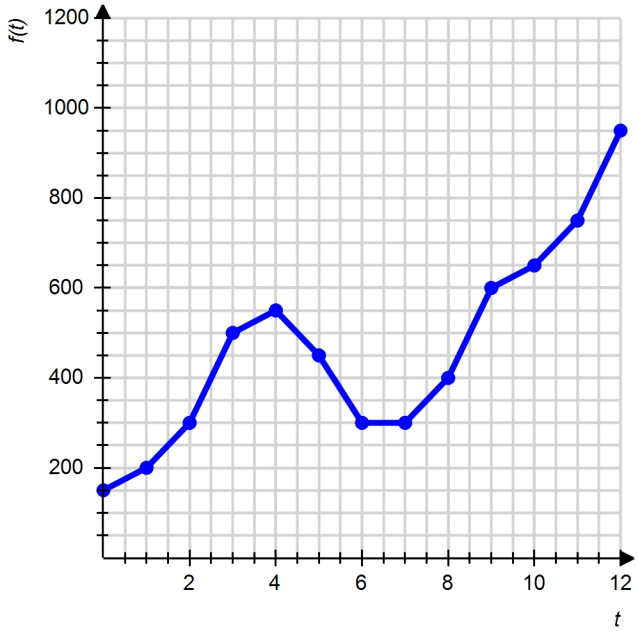
Please enter your answer as a number without the units.

ANSWER: 700,000
POINTS: 1
QUESTION TYPE: Numeric Response
HAS VARIABLES: True
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DATE MODIFIED: 11/2/2016 6:20 PM

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19. Graph shows the number of sports utility vehicles $f(t)$ sold in the United States. $f(t)$ represents sales in year t in thousands of vehicles. Use the graph to estimate the smallest value of $f(t)$ for $(3 \le t \le 9)$.



Please enter your answer as a number without the units.

ANSWER: 300,000
POINTS: 1
QUESTION TYPE: Numeric Response
HAS VARIABLES: True
DATE CREATED: 2/10/2016 3:48 PM
DATE MODIFIED: 11/2/2016 6:29 PM

Match each function with the corresponding graph.

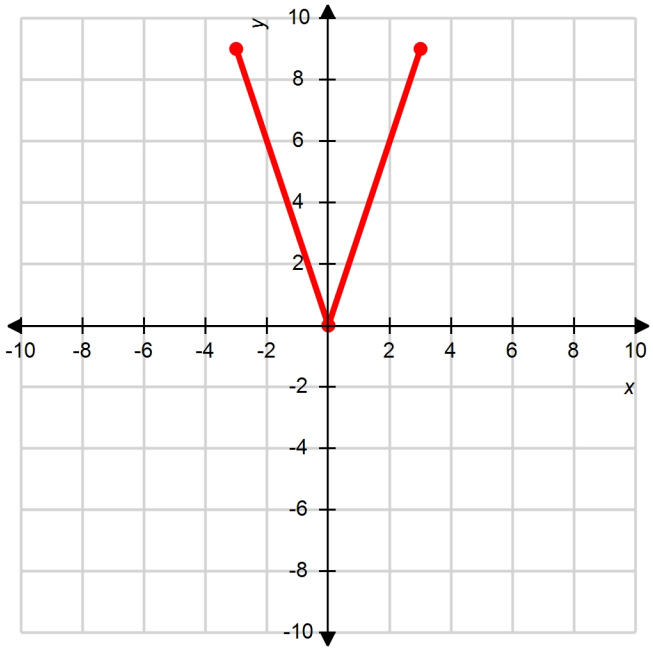
a. $f(x) = 3x, (-3 \le x \le 3)$
b. $f(x) = -3x, (-3 \le x \le 3)$
c. $f(x) = |3x|, (-3 \le x \le 3)$

QUESTION TYPE: Matching
HAS VARIABLES: False
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20.

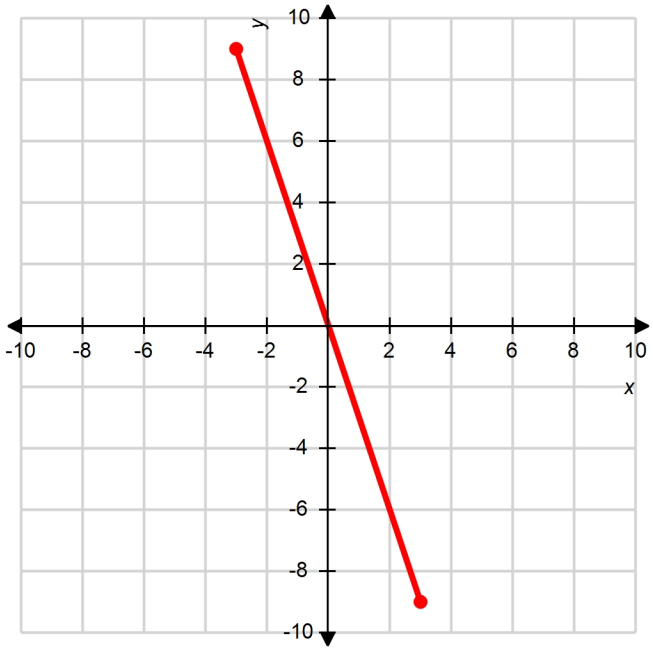


ANSWER: c
POINTS: 1

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21.

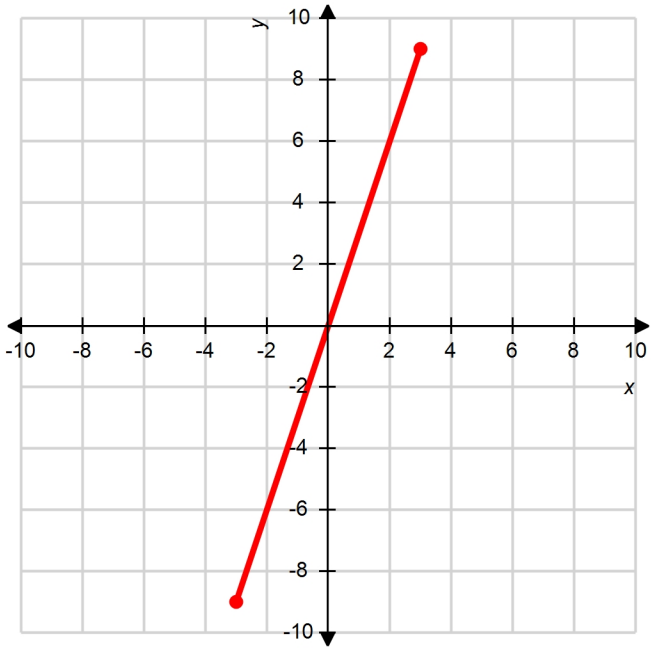


ANSWER: b
POINTS: 1

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22.



ANSWER: a
POINTS: 1

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