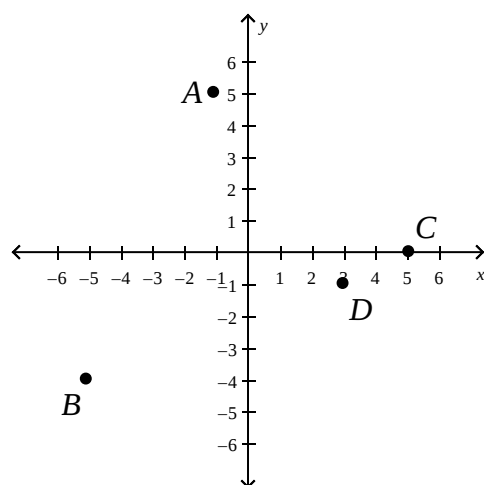


Contents

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Ch 1 Form A

_____ 1. Approximate the coordinates of the points.



- $A:(4, 5), B:(-5, -4), C:(5, 0), D:(3, -1)$
- $A:(1, 5), B:(-5, -4), C:(5, 0), D:(3, -1)$
- $A:(2, 5), B:(-5, -4), C:(5, 0), D:(3, -1)$
- $A:(3, 5), B:(-5, -4), C:(5, 0), D:(3, -1)$
- $A:(-1, 5), B:(-5, -4), C:(5, 0), D:(3, -1)$

_____ 2. Show that the points form the vertices of the indicated polygon.

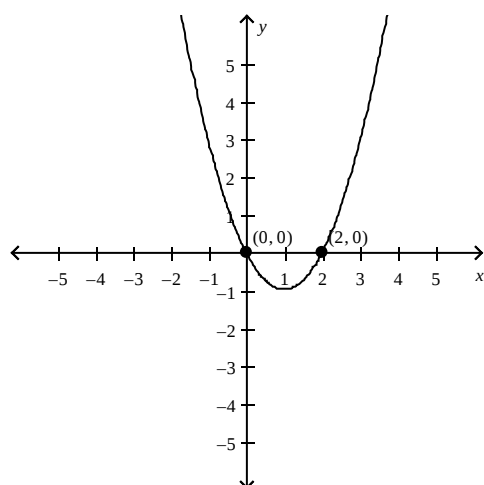
Right triangle: $(5, 2), (2, 4), (-2, -2)$

- $(\sqrt{11})^2 + (\sqrt{52})^2 = (\sqrt{65})^2$
- $(\sqrt{13})^2 + (\sqrt{52})^2 = (\sqrt{65})^2$
- $(\sqrt{29})^2 + (\sqrt{52})^2 = (\sqrt{65})^2$
- $(\sqrt{20})^2 + (\sqrt{52})^2 = (\sqrt{65})^2$
- $(\sqrt{7})^2 + (\sqrt{52})^2 = (\sqrt{65})^2$

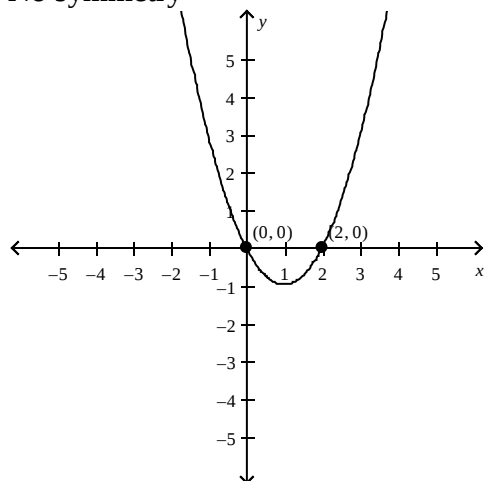
____ 3. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

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

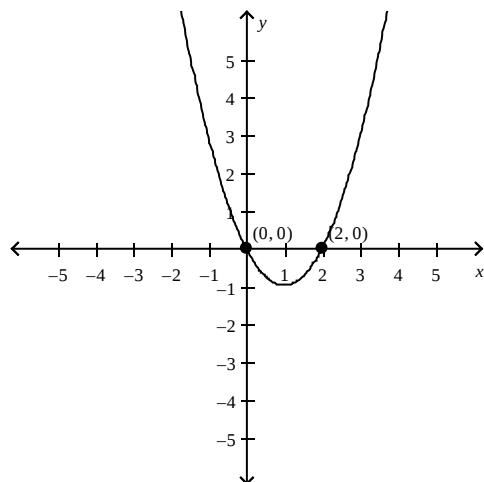
- a. x -intercept : $(0,0), (2,0)$
 y -intercept : $(0,0)$
No symmetry



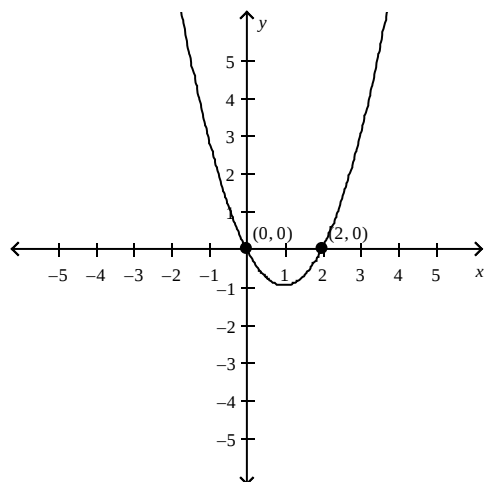
- b. x -intercept : $(0,0), (-2,0)$
 y -intercept : $(0,1)$
No symmetry



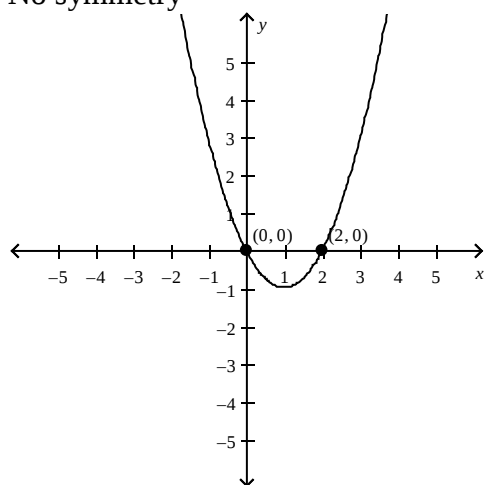
- c. x -intercept : $(2, 0), (2, 0)$
 y -intercept : $(0, 1)$
No symmetry



- d. x -intercept : $(0, 0), (2, 0)$
 y -intercept : $(0, 1)$
No symmetry



- e. x -intercept : $(0,0), (2,0)$
 y -intercept : $(0,-1)$
No symmetry

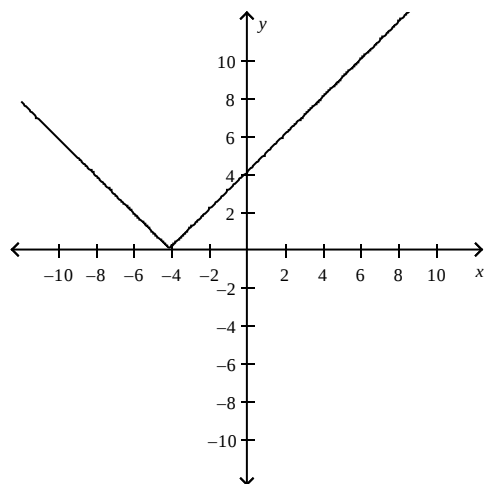


- ____ 4. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

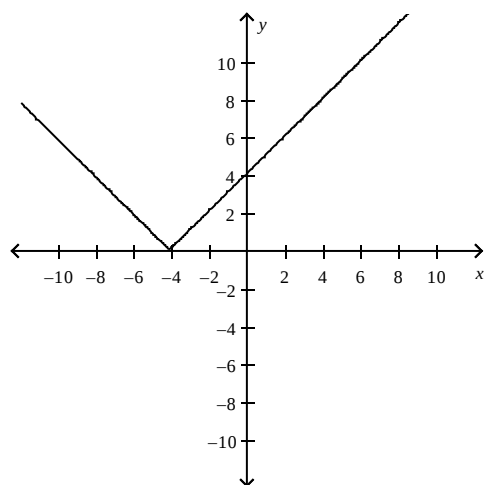
$$y = |x + 4|$$

- a.

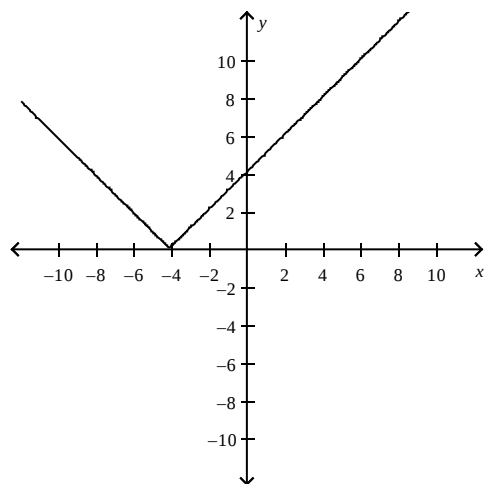
Intercepts: $(0,-4), (0,4)$



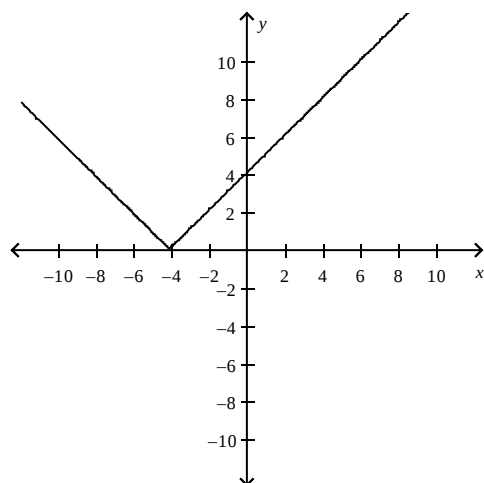
b.

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

c.

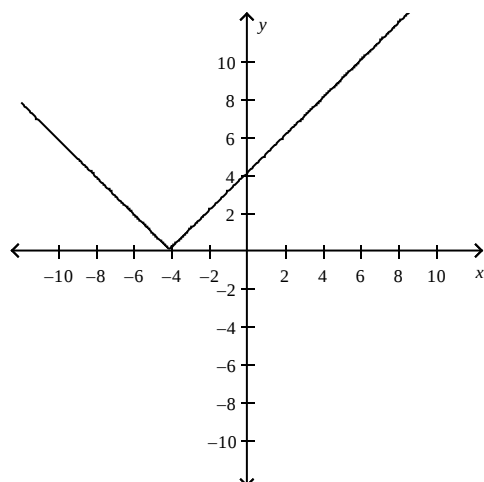
Intercepts: $(4, 0), (0, 4)$ 

- d. Intercepts: $(-4, 0), (0, 4)$



- e.

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



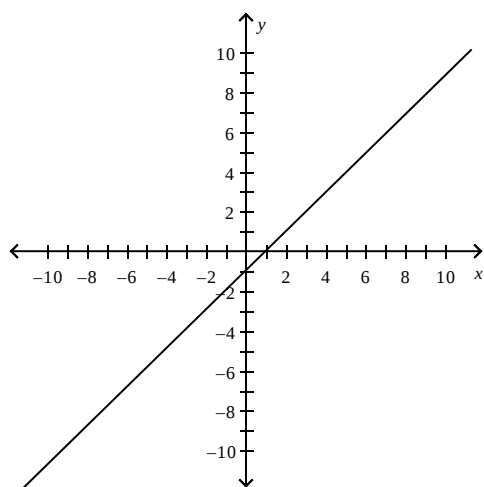
____ 5. Find the x- and y-intercepts of the graph of the equation $y^2 = -9x + 7$.

- a. x-intercept: $\left(-\frac{7}{9}, 0\right)$
y-intercept: $(0, \sqrt{7})$
- b. x-intercept: $\left(-\frac{7}{9}, 0\right)$
y-intercept: $(0, \pm \sqrt{7})$
- c. x-intercept: $\left(\frac{7}{9}, 0\right)$
y-intercept: $(0, \sqrt{7})$
- d. x-intercept: $\left(-\frac{7}{9}, 0\right)$
y-intercept: $(0, -\sqrt{7})$
- e. x-intercept: $\left(\frac{7}{9}, 0\right)$
y-intercept: $(0, \pm \sqrt{7})$

____ 6. Find the slope and y-intercept (if possible) of the equation of the line. Sketch the line.

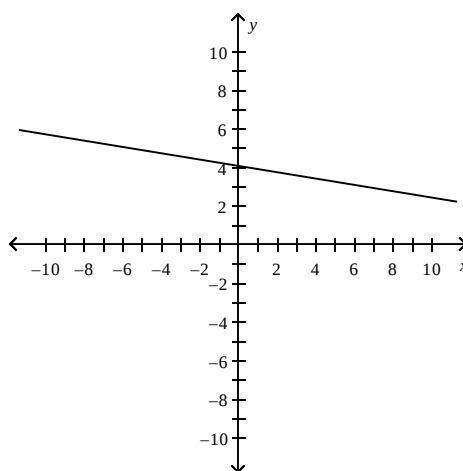
$$y = -\frac{1}{6}x + 4$$

a.



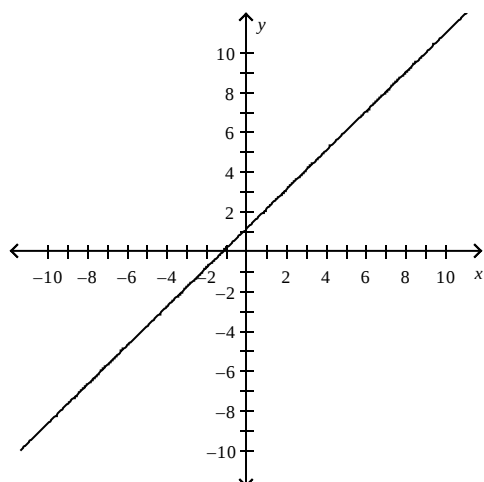
m is undefined.
y-intercept: $(0, 4)$

d.



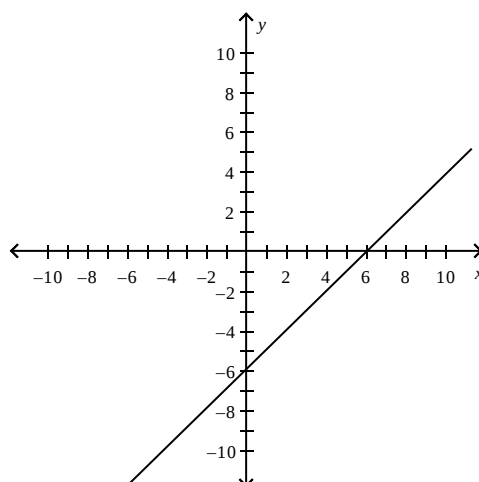
$m = -\frac{1}{6}$
y-intercept: $(0, 4)$

b.



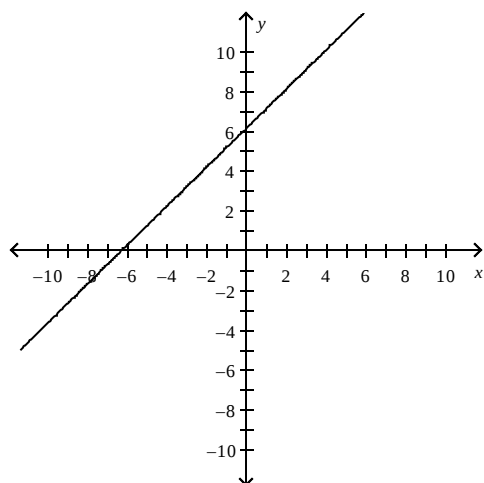
$m = -1$
y-intercept: (0, 6)

e.



$m = 6$
y-intercept: (0, -6)

c.



$m = -6$
y-intercept: (0, 6)

____ 7. Use the *intercept form* to find the equation of the line with the given intercepts. The intercept form of the equation of a line with intercepts $(a, 0)$ and $(0, b)$ is

$$\frac{x}{a} + \frac{y}{b} = 1, a \neq 0, b \neq 0.$$

Point on line: $(-8, 6)$

x-intercept: $(c, 0)$

y-intercept: $(0, c)$, $c \neq 0$

- a. $x - y - 2 = 0$
- b. $-x + y - 2 = 0$
- c. $-x - y - 2 = 0$
- d. $x + y - 2 = 0$
- e. $x + y - 6 = 0$

____ 8. Evaluate the function $g(y) = 10 - 4y$ at $g(s + 11)$.

- a. $34 + 4s$
- b. $34 - 4s$
- c. $-34 + 4s$
- d. $-34 - 4s$
- e. $10 - 4s$

____ 9. Find all real values of x such that $f(x) = 0$.

$$f(x) = 42 - 6x$$

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

____ 10. Find the difference quotient and simplify your answer.

$$f(x) = 5x - x^2, \quad \frac{f(7+h) - f(7)}{h}, \quad h \neq 0$$

- a. $-h - 8, \quad h \neq 0$
- b. $-h - 6, \quad h \neq 0$
- c. $-h - 5, \quad h \neq 0$
- d. $-h - 9, \quad h \neq 0$
- e. $-h - 7, \quad h \neq 0$

- ____ 11. Find the zeros of the function algebraically.

$$f(x) = \sqrt{7x+4}$$

- a. $\frac{4}{7}$
- b. $\frac{7}{4}$
- c. $-\frac{4}{7}$
- d. $-\frac{7}{4}$
- e. $\frac{7}{4}$

- ____ 12. Find the coordinates of a second point on the graph of a function f if the given point is on the graph and the function is even and odd.

$$(6a, 5c)$$

- a. Even: $(-6a, -5c)$
Odd: $(-6a, 5c)$
- b. Even: $(6a, -5c)$
Odd: $(-6a, -5c)$
- c. Even: $(-6a, -5c)$
Odd: $(-6a, -5c)$
- d. Even: $(-6a, 5c)$
Odd: $(6a, 5c)$
- e. Even: $(-6a, 5c)$
Odd: $(-6a, -5c)$

- ____ 13. Write the linear function such that it has the indicated function values.

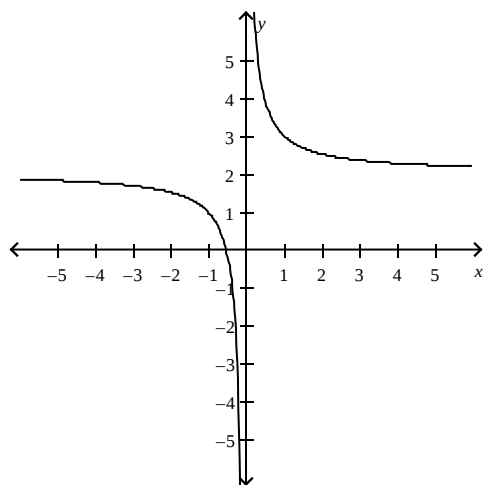
$$f(6) = 10, f(-3) = -17$$

- a. $f(x) = 3x - 8$
- b. $f(x) = -3x + 3$
- c. $f(x) = 3x + 8$
- d. $f(x) = 8x + 3$
- e. $f(x) = -3x - 3$

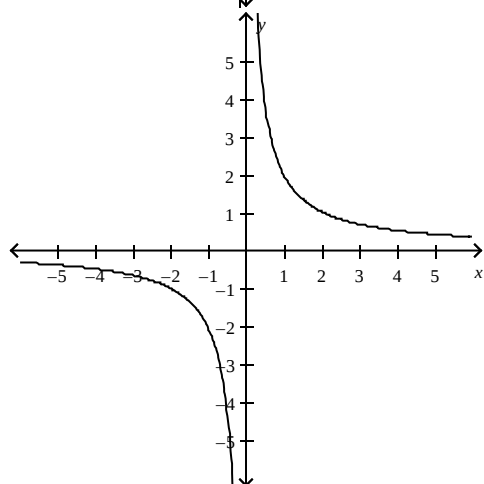
____ 14. Select the correct graph of the given function.

$$f(x) = 2 + \frac{1}{x}$$

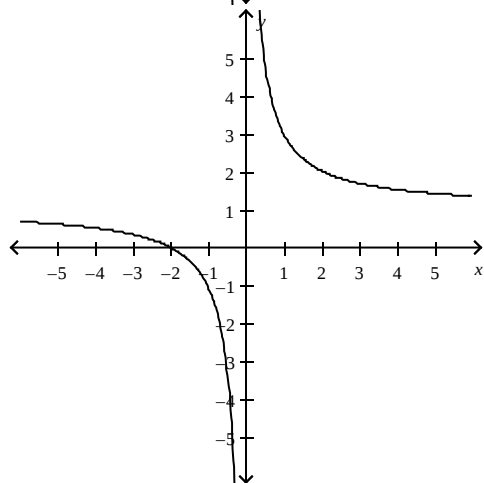
a.



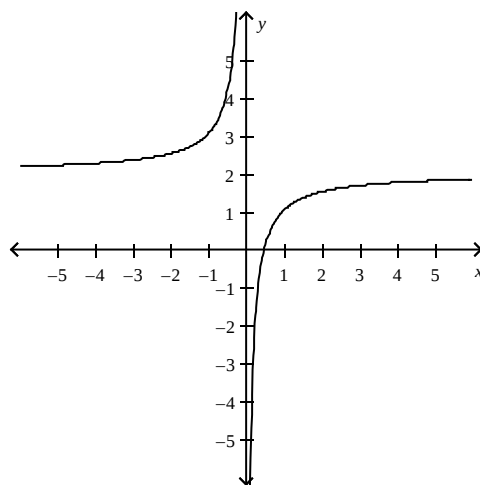
b.



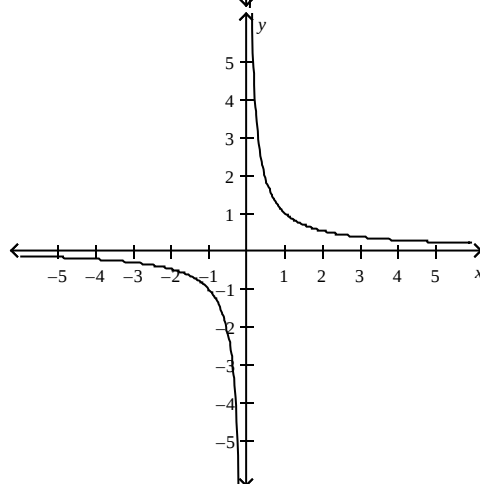
c.



d.

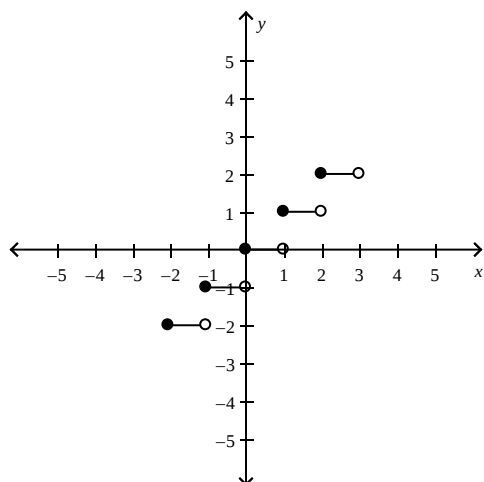


e.

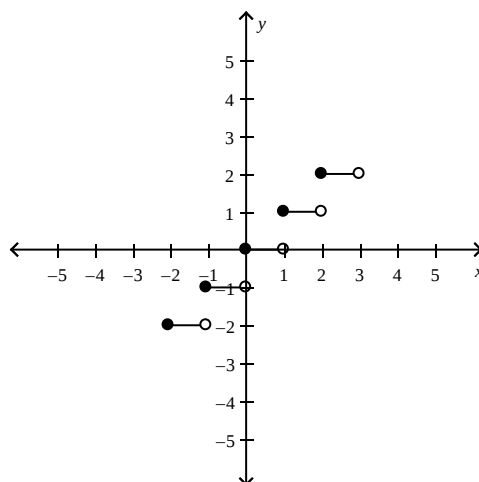


_____ 15. Select the graph of the function $f(x) = 3||x||$.

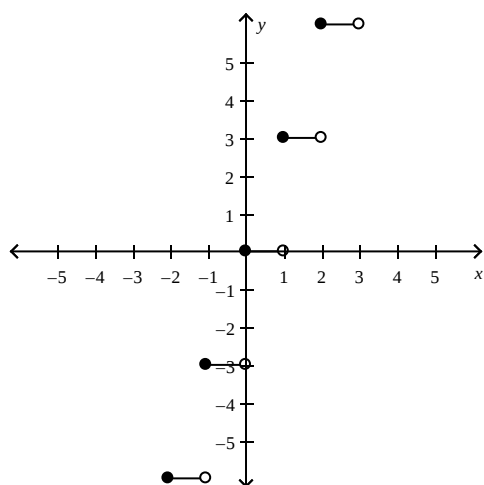
a.



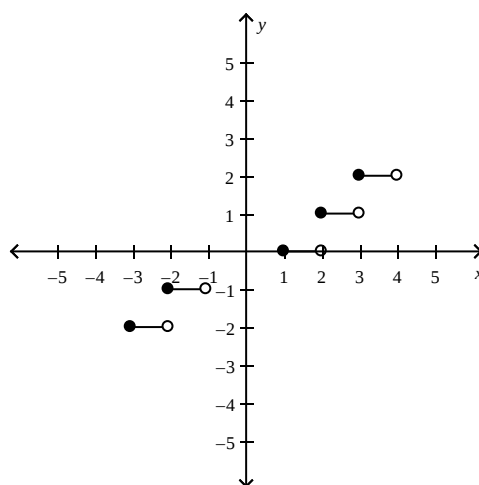
d.



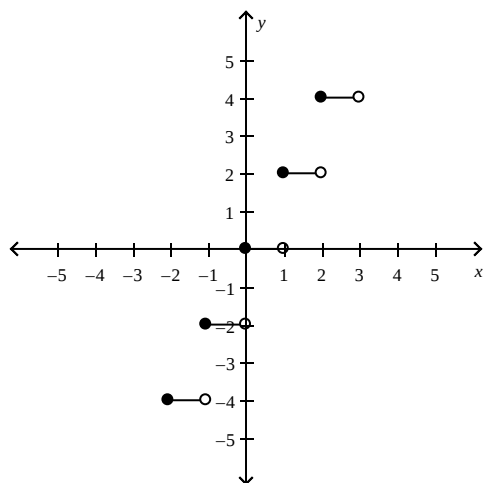
b.



e.



c.



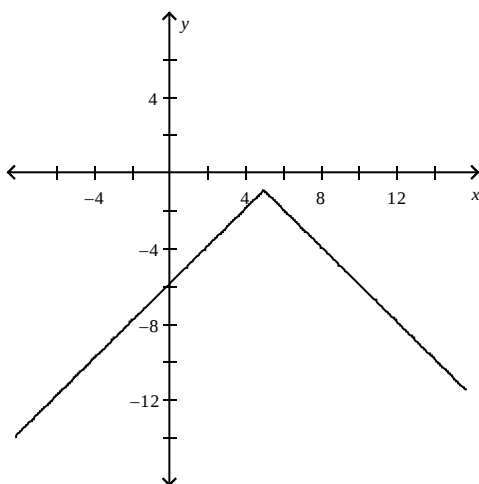
____ 16. Evaluate the function for the indicated values.

$$f(x) = 4\lfloor x + 8 \rfloor + 8$$

(i) $f(5)$ (ii) $f(-52.7)$ (iii) $f\left(\frac{2}{3}\right)$

- a. (i) 60 (ii) -168 (iii) 44
 b. (i) 60 (ii) -168 (iii) 40
 c. (i) 61 (ii) -172 (iii) 44
 d. (i) 61 (ii) -172 (iii) 40
 e. (i) 60 (ii) -172 (iii) 40

____ 17. Use the graph of $f(x) = |x|$ to write an equation for the function whose graph is shown.



- a. $y = |x - 5| - 1$
 b. $y = -|x - 5| + 1$
 c. $y = -|x + 5| - 1$
 d. $y = |x + 5| + 1$
 e. $y = -|x - 5| - 1$

____ 18. g is related to the parent function. Identify the parent function f .

$$g(x) = \sqrt{3x}$$

- a. $f(x) = \sqrt{3x}$
 b. $f(x) = -\sqrt{3x}$
 c. $f(x) = -\sqrt{x}$
 d. $f(x) = \sqrt{x}$
 e. None of the above

____ 19. Find $(f/g)(x)$. What is the domain of f/g ?

$$f(x) = x^2, \quad g(x) = 7x - 5$$

- a. $-\frac{x^2}{7x-5}$; all real numbers x .
- b. $\frac{7x+5}{x^2}$; all real numbers x except $x = 0$
- c. $\frac{x^2}{7x-5}$; all real numbers x except $x = \frac{5}{7}$
- d. $\frac{7x-5}{x^2}$; all real numbers x except $x = 0$
- e. $\frac{x^2}{7x+5}$; all real numbers x except $x = \frac{7}{5}$

____ 20. Find $g \circ f$ and the domain of composite function.

$$f(x) = x^2 + 2, \quad g(x) = \sqrt{x}$$

- a. $(x+2)^2$
Domain of $g \circ f$: all real numbers x
- b. $(x-2)^2$
Domain of $g \circ f$: all real numbers x
- c. $\sqrt{x^2 + 2}$
Domain of $g \circ f$: all real numbers x
- d. $\sqrt{(x-2)^2}$
Domain of $g \circ f$: all real numbers x
- e. $\sqrt{(x+2)^2}$
Domain of $g \circ f$: all real numbers x

____ 21. The suggested retail price of a new hybrid car is p dollars. The dealership advertises a factory rebate of \$2000 and a 30% discount.

Write a function R in terms of p giving the cost of the hybrid car after receiving the rebate from the factory.

- a. $R(p) = 2000 - p$
- b. $R(p) = p - 2000$
- c. $R(p) = p + 2000$
- d. $R(p) = p + 600$
- e. $R(p) = p - 600$

- ____ 22. Find the inverse function of f informally.

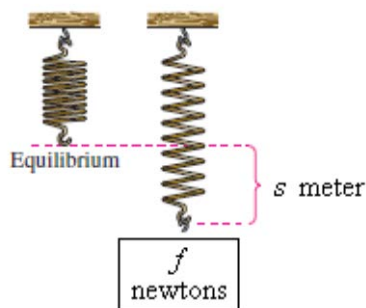
$$f(x) = x^7$$

- a. $f^{-1}(x) = 7\sqrt{x}$
- b. $f^{-1}(x) = 2\left(\sqrt[7]{x}\right)$
- c. $f^{-1}(x) = \left(\sqrt[7]{x}\right)^7$
- d. $f^{-1}(x) = -\sqrt[7]{x}$
- e. $f^{-1}(x) = \sqrt[7]{x}$

- ____ 23. Find the inverse function of $g(x) = x^7 - 4$.

- a. $g^{-1}(x) = \sqrt[7]{x-4}$
- b. $g^{-1}(x) = (x+4)^7$
- c. $g^{-1}(x) = x^7 + 4$
- d. $g^{-1}(x) = \sqrt[7]{x+4}$
- e. $g^{-1}(x) = (x-4)^7$

- ____ 24. A force of $f = 245$ newtons stretches a spring $s = 0.25$ meter (see figure).



How far will a force of 60 newtons stretch the spring? What force is required to stretch the spring 0.2 meter?

- a. 0.25 m; 196 N
- b. 0.25 m; 245 N
- c. 0.06 m; 196 N
- d. 0.09 m; 285 N
- e. 0.06 m; 245 N

____ 25. After determining whether the variation model below is of the form $y = kx$ or $y = \frac{k}{x}$, find the value of k .

x	4	8	12	16	20
y	$\frac{1}{6}$	$\frac{1}{12}$	$\frac{1}{18}$	$\frac{1}{24}$	$\frac{1}{30}$

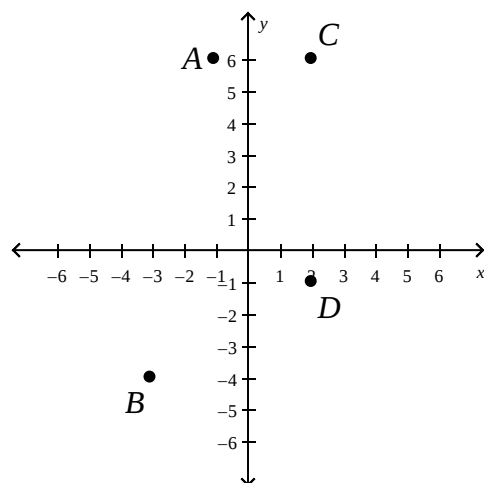
- a. $k = \frac{1}{4}$
- b. $k = \frac{3}{2}$
- c. $k = \frac{5}{4}$
- d. $k = \frac{1}{2}$
- e. $k = \frac{2}{3}$

Ch 1 Form A
Answer Section

1.	ANS: E	PTS: 1	REF: 1.1.5
2.	ANS: B	PTS: 1	REF: 1.1.43
3.	ANS: A	PTS: 1	REF: 1.2.47
4.	ANS: D	PTS: 1	REF: 1.2.67
5.	ANS: E	PTS: 1	REF: 1.2.32
6.	ANS: D	PTS: 1	REF: 1.3.19
7.	ANS: D	PTS: 1	REF: 1.3.102
8.	ANS: D	PTS: 1	REF: 1.4.38c
9.	ANS: A	PTS: 1	REF: 1.4.59
10.	ANS: D	PTS: 1	REF: 1.4.104
11.	ANS: D	PTS: 1	REF: 1.5.32
12.	ANS: E	PTS: 1	REF: 1.5.130
13.	ANS: A	PTS: 1	REF: 1.6.14a
14.	ANS: A	PTS: 1	REF: 1.6.36
15.	ANS: B	PTS: 1	REF: 1.6.52
16.	ANS: E	PTS: 1	REF: 1.6.46
17.	ANS: E	PTS: 1	REF: 1.7.17d
18.	ANS: D	PTS: 1	REF: 1.7.35a
19.	ANS: C	PTS: 1	REF: 1.8.11d
20.	ANS: C	PTS: 1	REF: 1.8.43b
21.	ANS: B	PTS: 1	REF: 1.8.76a
22.	ANS: E	PTS: 1	REF: 1.9.14
23.	ANS: D	PTS: 1	REF: 1.9..51a
24.	ANS: C	PTS: 1	REF: 1.10.45
25.	ANS: E	PTS: 1	REF: 1.10.33

Ch 1 Form B

_____ 1. Approximate the coordinates of the points.



- a. $A:(1, 6), B:(-3, -4), C:(2, 6), D:(2, -1)$
- b. $A:(-1, 6), B:(-3, -4), C:(2, 6), D:(2, -1)$
- c. $A:(2, 6), B:(-3, -4), C:(2, 6), D:(2, -1)$
- d. $A:(4, 6), B:(-3, -4), C:(2, 6), D:(2, -1)$
- e. $A:(3, 6), B:(-3, -4), C:(2, 6), D:(2, -1)$

_____ 2. Show that the points form the vertices of the indicated polygon.

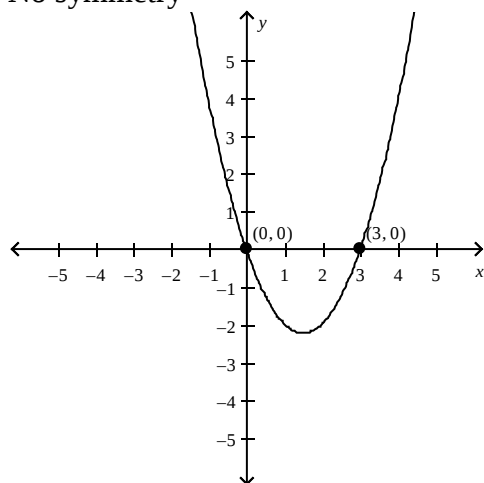
Right triangle: $(5, 5), (6, 4), (-2, -4)$

- a. $(\sqrt{2})^2 + (\sqrt{128})^2 = (\sqrt{130})^2$
- b. $(\sqrt{52})^2 + (\sqrt{128})^2 = (\sqrt{130})^2$
- c. $(\sqrt{11})^2 + (\sqrt{128})^2 = (\sqrt{130})^2$
- d. $(\sqrt{50})^2 + (\sqrt{128})^2 = (\sqrt{130})^2$
- e. $(\sqrt{7})^2 + (\sqrt{128})^2 = (\sqrt{130})^2$

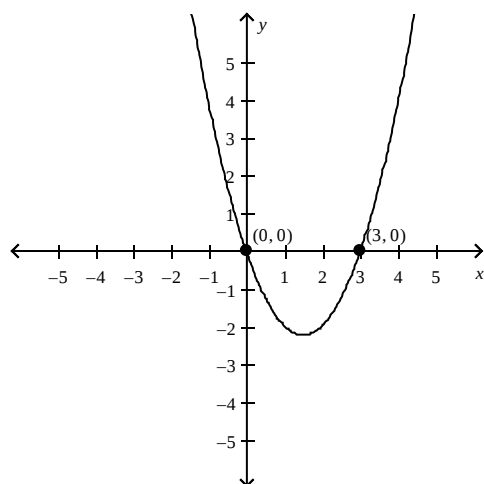
____ 3. Identify any intercepts and test for symmetry. Then sketch the graph of the equation.

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

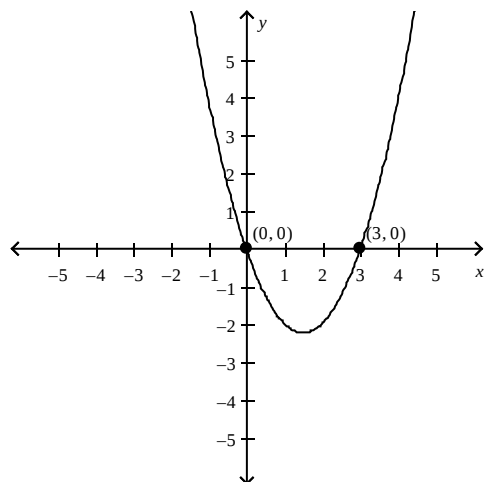
- a. x -intercept : $(0,0), (-3,0)$
 y -intercept : $(0,1)$
No symmetry



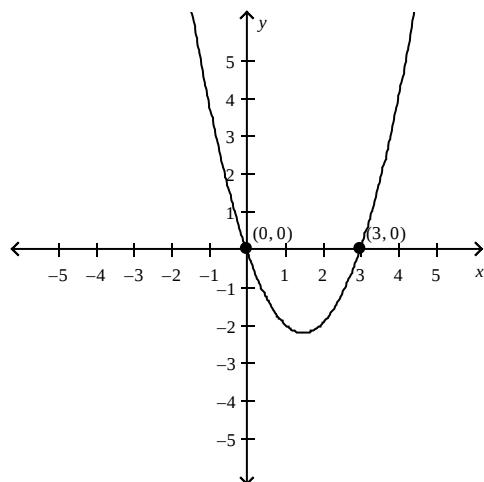
- b. x -intercept : $(0,0), (3,0)$
 y -intercept : $(0,1)$
No symmetry



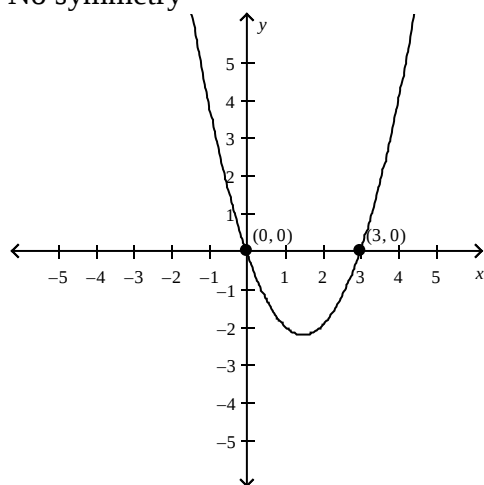
- c. x -intercept : $(0,0), (3,0)$
 y -intercept : $(0,0)$
No symmetry



- d. x -intercept : $(3,0), (3,0)$
 y -intercept : $(0,1)$
No symmetry



- e. x -intercept : $(0, 0), (3, 0)$
 y -intercept : $(0, -1)$
No symmetry

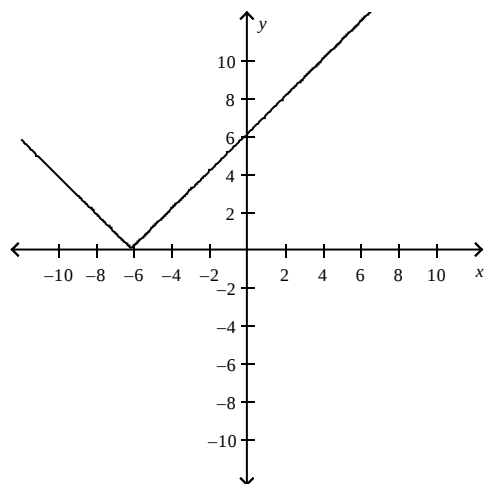


- ____ 4. Use a graphing utility to graph the equation. Use a standard setting. Approximate any intercepts.

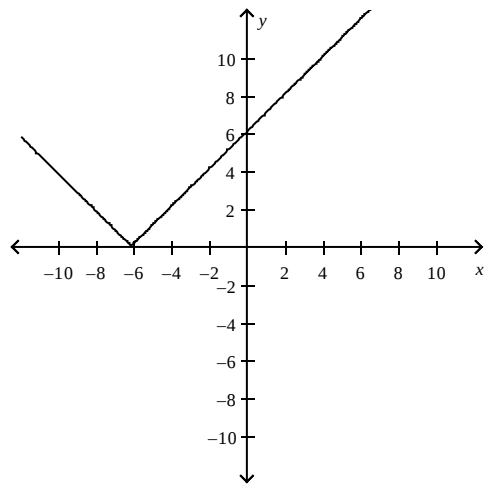
$$y = |x + 6|$$

- a.

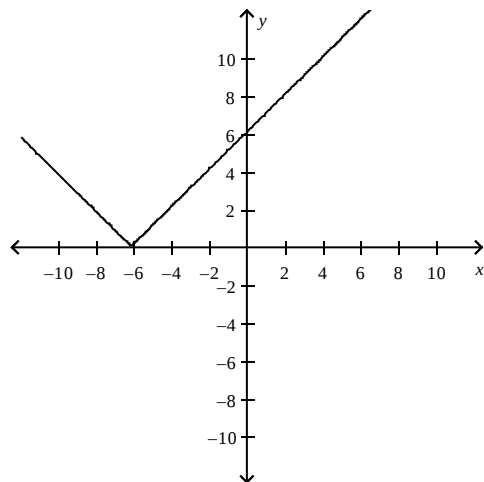
Intercepts: $(6, 0), (0, 6)$



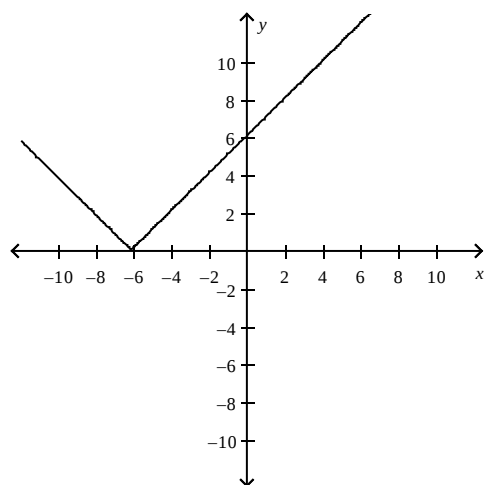
b.

Intercepts: $(-6, 0), (6, 0)$ 

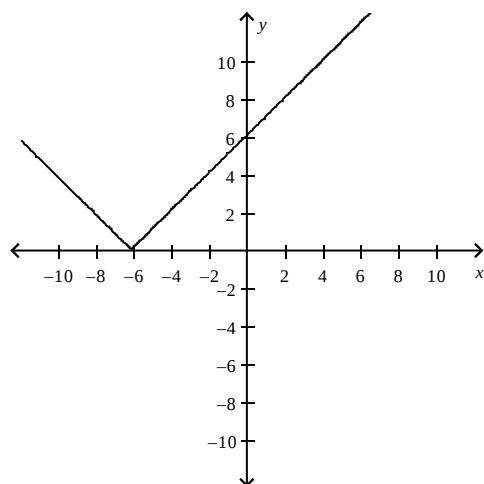
c.

Intercepts: $(0, -6), (0, 6)$ 

d.

Intercepts: $(-6, 0), (0, -6)$ 

e.

Intercepts: $(-6, 0), (0, 6)$ 

____ 5. Find the x- and y-intercepts of the graph of the equation $y^2 = 7x + 2$.

a. x-intercept: $\left(\frac{2}{7}, 0\right)$

y-intercept: $(0, \pm\sqrt{2})$

b. x-intercept: $\left(\frac{2}{7}, 0\right)$

y-intercept: $(0, -\sqrt{2})$

c. x-intercept: $\left(-\frac{2}{7}, 0\right)$

y-intercept: $(0, \sqrt{2})$

d. x-intercept: $\left(\frac{2}{7}, 0\right)$

y-intercept: $(0, \sqrt{2})$

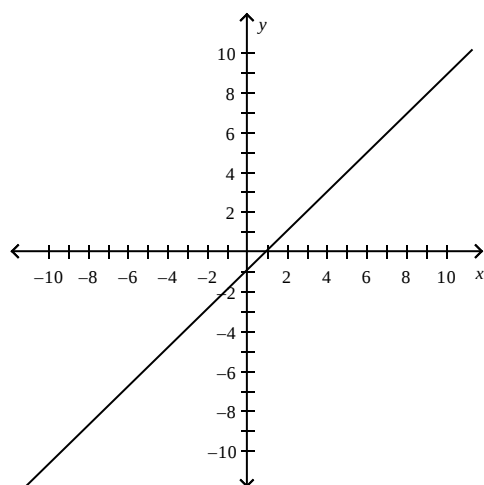
e. x-intercept: $\left(-\frac{2}{7}, 0\right)$

y-intercept: $(0, \pm\sqrt{2})$

____ 6. Find the slope and y-intercept (if possible) of the equation of the line. Sketch the line.

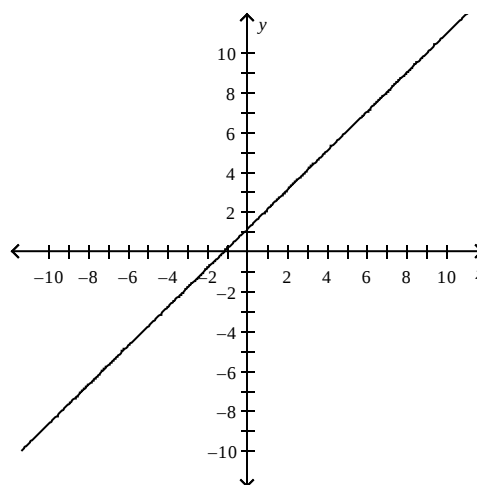
$$y = -\frac{1}{2}x + 6$$

a.



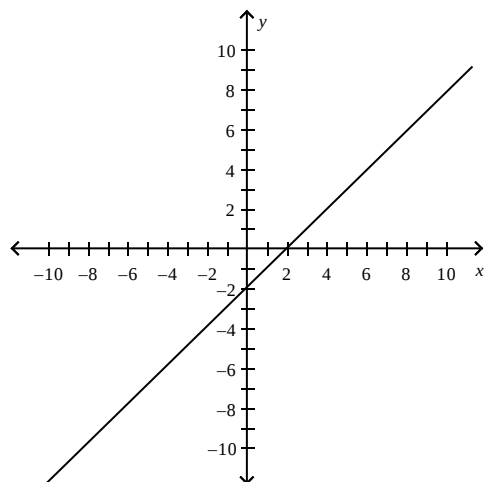
m is undefined.
y-intercept: $(0, 6)$

d.



$m = -1$
y-intercept: $(0, 2)$

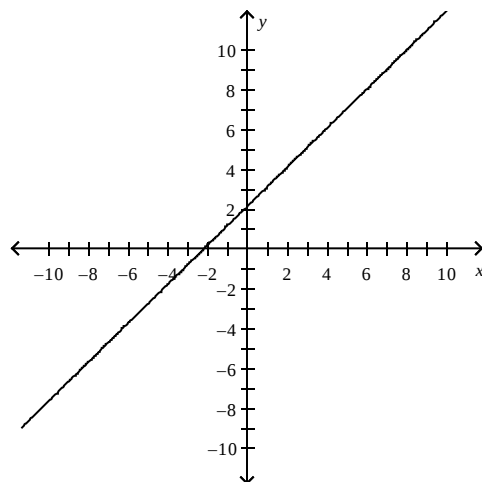
b.



$$m = 2$$

y-intercept: (0, -2)

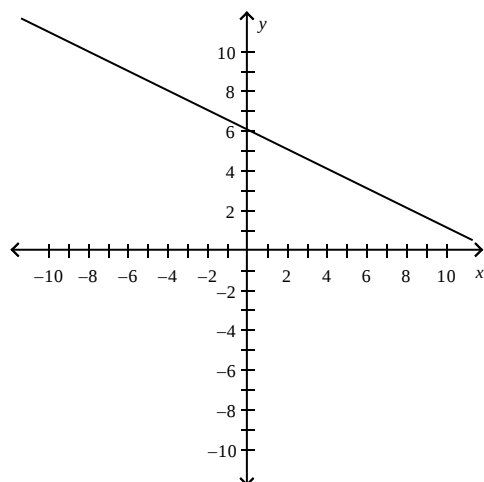
e.



$$m = -2$$

y-intercept: (0, 2)

c.



$$m = -\frac{1}{2}$$

y-intercept: (0, 6)

____ 7. Use the *intercept form* to find the equation of the line with the given intercepts. The intercept form of the equation of a line with intercepts $(a, 0)$ and $(0, b)$ is

$$\frac{x}{a} + \frac{y}{b} = 1, a \neq 0, b \neq 0.$$

Point on line: $(-8, 3)$

x-intercept: $(c, 0)$

y-intercept: $(0, c)$, $c \neq 0$

- a. $-x - y - 5 = 0$
- b. $-x + y - 5 = 0$
- c. $x + y - 3 = 0$
- d. $x + y - 5 = 0$
- e. $x - y - 5 = 0$

____ 8. Evaluate the function $g(y) = 7 - 5y$ at $g(s + 14)$.

- a. $-63 - 5s$
- b. $63 + 5s$
- c. $63 - 5s$
- d. $-63 + 5s$
- e. $7 - 5s$

____ 9. Find all real values of x such that $f(x) = 0$.

$$f(x) = 72 - 9x$$

- a. 6
- b. 10
- c. 9
- d. 7
- e. 8

____ 10. Find the difference quotient and simplify your answer.

$$f(x) = 5x - x^2, \quad \frac{f(9+h) - f(9)}{h}, \quad h \neq 0$$

- a. $-h - 11, \quad h \neq 0$
- b. $-h - 10, \quad h \neq 0$
- c. $-h - 9, \quad h \neq 0$
- d. $-h - 13, \quad h \neq 0$
- e. $-h - 12, \quad h \neq 0$

- ____ 11. Find the zeros of the function algebraically.

$$f(x) = \sqrt{5x+2}$$

- a. $\frac{5}{2}$
- b. $-\frac{2}{5}$
- c. $\frac{2}{5}$
- d. $-\frac{5}{2}$
- e. $\frac{5}{2}$

- ____ 12. Find the coordinates of a second point on the graph of a function f if the given point is on the graph and the function is even and odd.

$$(6a, 4c)$$

- a. Even: $(-6a, 4c)$
Odd: $(6a, 4c)$
- b. Even: $(-6a, -4c)$
Odd: $(-6a, 4c)$
- c. Even: $(-6a, 4c)$
Odd: $(-6a, -4c)$
- d. Even: $(6a, -4c)$
Odd: $(-6a, -4c)$
- e. Even: $(-6a, -4c)$
Odd: $(-6a, -4c)$

- ____ 13. Write the linear function such that it has the indicated function values.

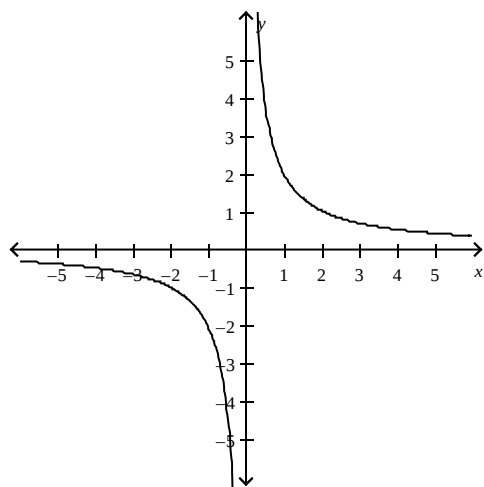
$$f(6) = 11, f(-1) = -10$$

- a. $f(x) = 3x - 7$
- b. $f(x) = -3x - 1$
- c. $f(x) = -3x + 1$
- d. $f(x) = 3x + 7$
- e. $f(x) = 7x + 3$

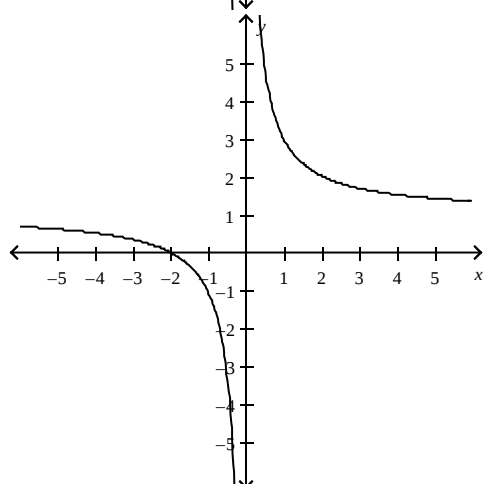
____ 14. Select the correct graph of the given function.

$$f(x) = 2 + \frac{1}{x}$$

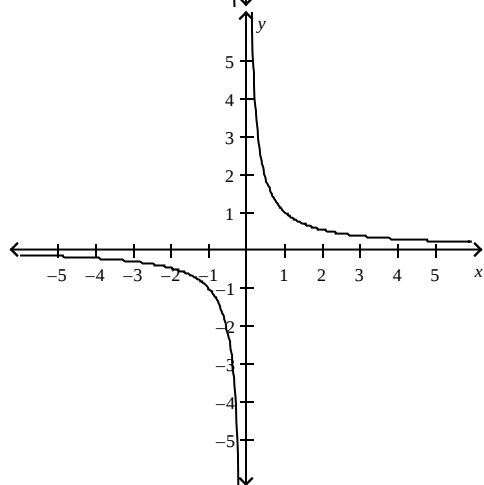
a.



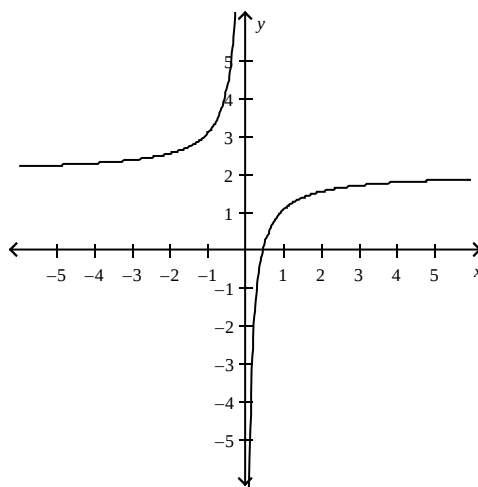
b.



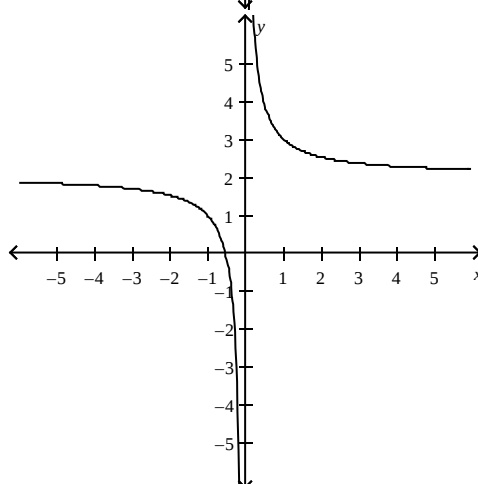
c.



d.

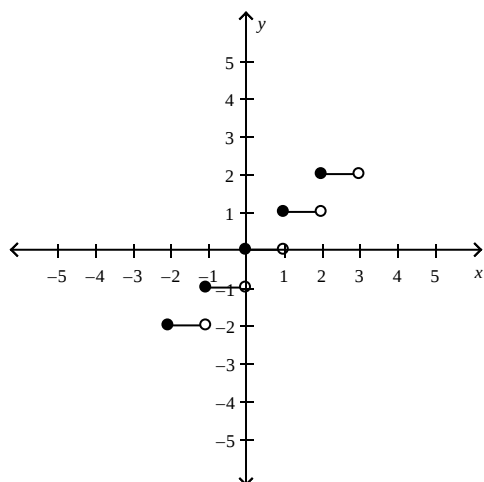


e.

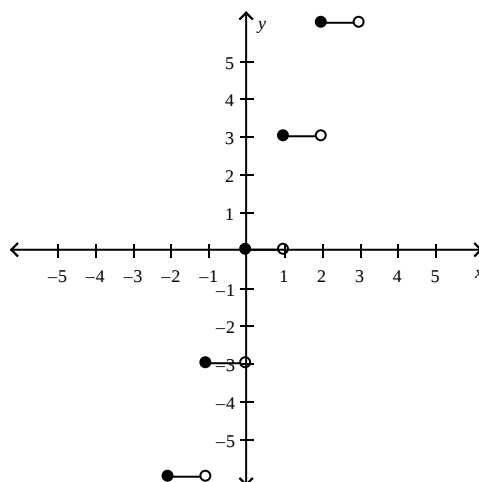


____ 15. Select the graph of the function $f(x) = 3||x||$.

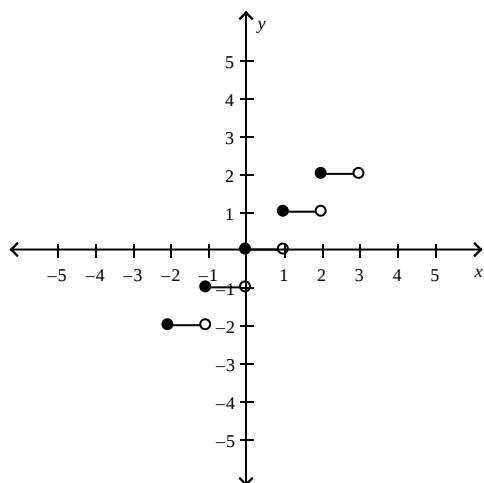
a.



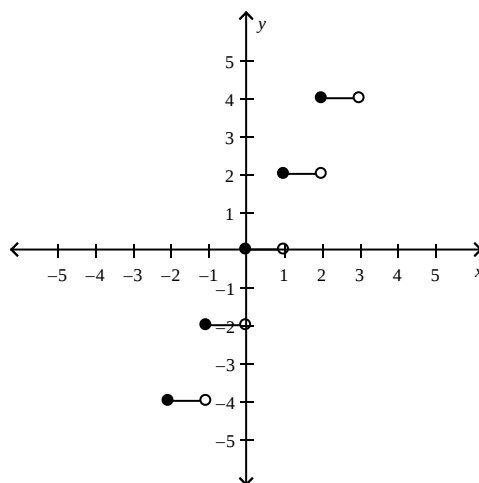
d.



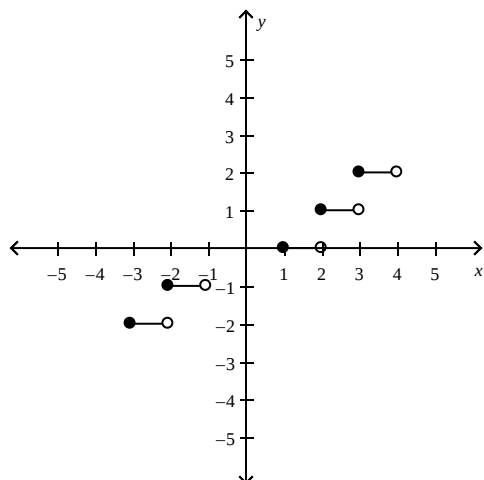
b.



e.



c.



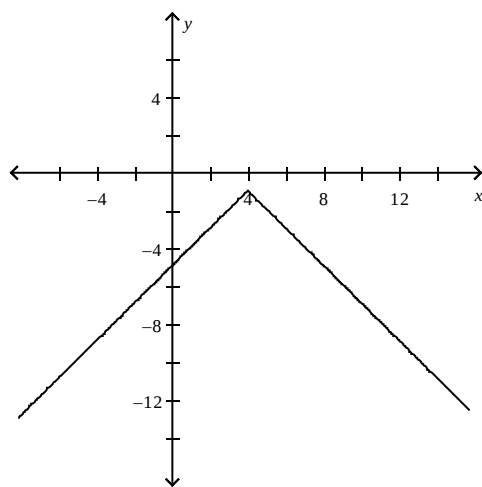
____ 16. Evaluate the function for the indicated values.

$$f(x) = 2\llbracket x + 6 \rrbracket + 8$$

(i) $f(-1)$ (ii) $f(-2.3)$ (iii) $f\left(\frac{2}{3}\right)$

- a. (i) 19 (ii) 14 (iii) 20
 b. (i) 18 (ii) 16 (iii) 20
 c. (i) 19 (ii) 14 (iii) 22
 d. (i) 18 (ii) 16 (iii) 22
 e. (i) 18 (ii) 14 (iii) 20

____ 17. Use the graph of $f(x) = |x|$ to write an equation for the function whose graph is shown.



- a. $y = |x + 4| + 1$
 b. $y = -|x - 4| + 1$
 c. $y = -|x - 4| - 1$
 d. $y = |x - 4| - 1$
 e. $y = -|x + 4| - 1$

____ 18. g is related to the parent function. Identify the parent function f .

$$g(x) = \sqrt{7x}$$

- a. $f(x) = -\sqrt{x}$
 b. $f(x) = \sqrt{x}$
 c. $f(x) = \sqrt{7x}$
 d. $f(x) = -\sqrt{7x}$
 e. None of the above

____ 19. Find $(f/g)(x)$. What is the domain of f/g ?

$$f(x) = x^2, \quad g(x) = 5x - 7$$

- a. $\frac{5x-7}{x^2}$; all real numbers x except $x = 0$
- b. $-\frac{x^2}{5x-7}$; all real numbers x .
- c. $\frac{5x+7}{x^2}$; all real numbers x except $x = 0$
- d. $\frac{x^2}{5x+7}$; all real numbers x except $x = \frac{5}{7}$
- e. $\frac{x^2}{5x-7}$; all real numbers x except $x = \frac{7}{5}$

____ 20. Find $g \circ f$ and the domain of composite function.

$$f(x) = x^2 + 5, \quad g(x) = \sqrt{x}$$

- a. $\sqrt{(x-5)^5}$
Domain of $g \circ f$: all real numbers x
- b. $(x+5)^5$
Domain of $g \circ f$: all real numbers x
- c. $\sqrt{(x+5)^5}$
Domain of $g \circ f$: all real numbers x
- d. $(x-5)^5$
Domain of $g \circ f$: all real numbers x
- e. $\sqrt{x^2 + 5}$
Domain of $g \circ f$: all real numbers x

____ 21. The suggested retail price of a new hybrid car is p dollars. The dealership advertises a factory rebate of \$3000 and a 30% discount.

Write a function R in terms of p giving the cost of the hybrid car after receiving the rebate from the factory.

- a. $R(p) = p - 3000$
- b. $R(p) = p + 900$
- c. $R(p) = p - 900$
- d. $R(p) = 3000 - p$
- e. $R(p) = p + 3000$

- ____ 22. Find the inverse function of f informally.

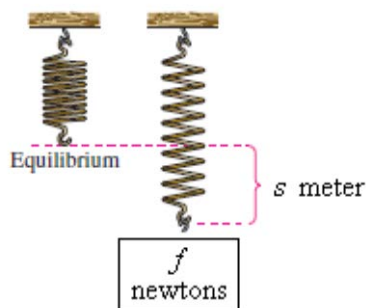
$$f(x) = x^3$$

- a. $f^{-1}(x) = -\sqrt[3]{x}$
- b. $f^{-1}(x) = 2\left(\sqrt[3]{x}\right)$
- c. $f^{-1}(x) = 3\sqrt{x}$
- d. $f^{-1}(x) = \left(\sqrt[3]{x}\right)^3$
- e. $f^{-1}(x) = \sqrt[3]{x}$

- ____ 23. Find the inverse function of $g(x) = x^8 - 7$.

- a. $g^{-1}(x) = \sqrt[8]{x-7}$
- b. $g^{-1}(x) = \sqrt[8]{x+7}$
- c. $g^{-1}(x) = (x-7)^8$
- d. $g^{-1}(x) = (x+7)^8$
- e. $g^{-1}(x) = x^8 + 7$

- ____ 24. A force of $f = 250$ newtons stretches a spring $s = 0.2$ meter (see figure).



How far will a force of 110 newtons stretch the spring? What force is required to stretch the spring 0.4 meter?

- a. 0.09 m; 285 N
- b. 0.2 m; 250 N
- c. 0.09 m; 500 N
- d. 0.2 m; 500 N
- e. 0.09 m; 250 N

____ 25. After determining whether the variation model below is of the form $y = kx$ or $y = \frac{k}{x}$, find the value of k .

x	24	48	72	96	120
y	$\frac{1}{36}$	$\frac{1}{72}$	$\frac{1}{108}$	$\frac{1}{144}$	$\frac{1}{180}$

- a. $k = \frac{5}{4}$
- b. $k = \frac{1}{12}$
- c. $k = \frac{3}{2}$
- d. $k = \frac{2}{3}$
- e. $k = \frac{1}{24}$

Ch 1 Form B
Answer Section

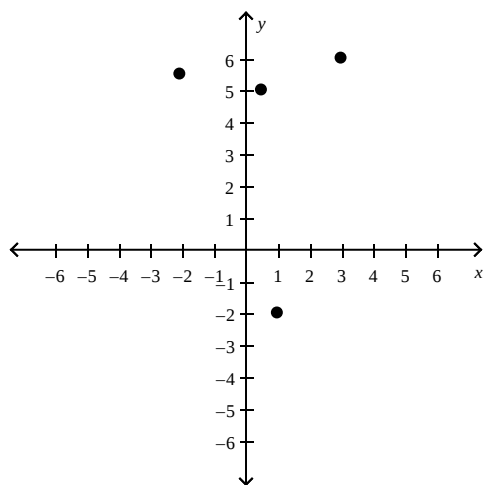
1.	ANS: B	PTS: 1	REF: 1.1.5
2.	ANS: A	PTS: 1	REF: 1.1.43
3.	ANS: C	PTS: 1	REF: 1.2.47
4.	ANS: E	PTS: 1	REF: 1.2.67
5.	ANS: E	PTS: 1	REF: 1.2.32
6.	ANS: C	PTS: 1	REF: 1.3.19
7.	ANS: D	PTS: 1	REF: 1.3.102
8.	ANS: A	PTS: 1	REF: 1.4.38c
9.	ANS: E	PTS: 1	REF: 1.4.59
10.	ANS: D	PTS: 1	REF: 1.4.104
11.	ANS: C	PTS: 1	REF: 1.5.32
12.	ANS: C	PTS: 1	REF: 1.5.130
13.	ANS: A	PTS: 1	REF: 1.6.14a
14.	ANS: E	PTS: 1	REF: 1.6.36
15.	ANS: D	PTS: 1	REF: 1.6.52
16.	ANS: E	PTS: 1	REF: 1.6.46
17.	ANS: C	PTS: 1	REF: 1.7.17d
18.	ANS: B	PTS: 1	REF: 1.7.35a
19.	ANS: E	PTS: 1	REF: 1.8.11d
20.	ANS: E	PTS: 1	REF: 1.8.43b
21.	ANS: A	PTS: 1	REF: 1.8.76a
22.	ANS: E	PTS: 1	REF: 1.9.14
23.	ANS: B	PTS: 1	REF: 1.9..51a
24.	ANS: C	PTS: 1	REF: 1.10.45
25.	ANS: D	PTS: 1	REF: 1.10.33

Ch 1 Form C

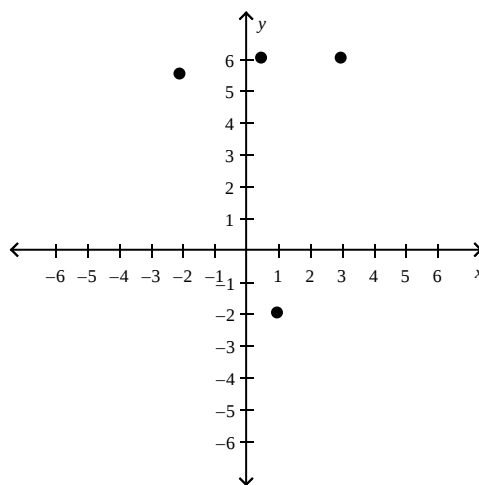
____ 1. Plot the points in the Cartesian plane.

$(3, 6), (0.5, 6), (1, -2), (-2, 5.5)$

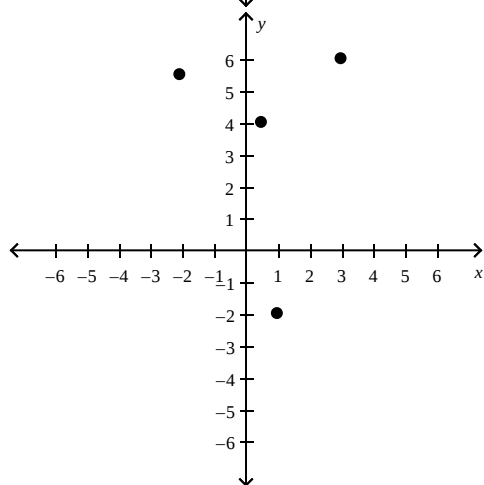
a.



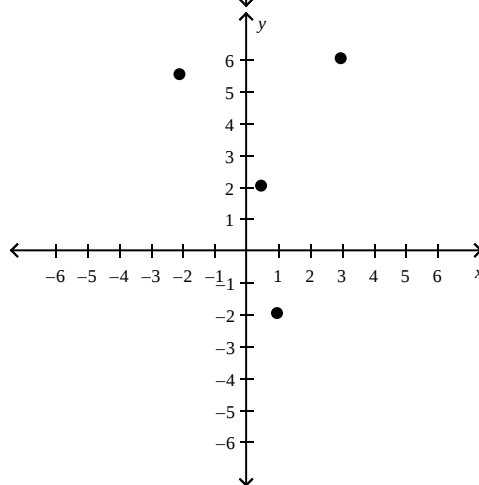
d.



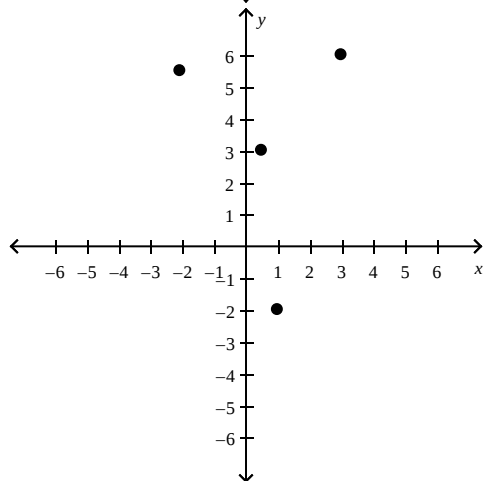
b.



e.



c.



____ 2. Show that the points form the vertices of the indicated polygon.

Isosceles triangle: $(5, 9), (1, 4), (6, 8)$

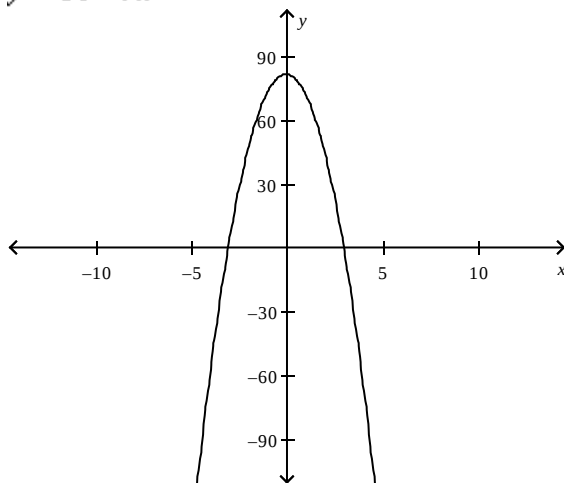
- Distances between the points: $\sqrt{19}, \sqrt{41}, \sqrt{2}$
- Distances between the points: $\sqrt{41}, \sqrt{41}, \sqrt{2}$
- Distances between the points: $\sqrt{37}, \sqrt{41}, \sqrt{2}$
- Distances between the points: $\sqrt{26}, \sqrt{41}, \sqrt{2}$
- Distances between the points: $\sqrt{43}, \sqrt{41}, \sqrt{2}$

____ 3. Which of the following graphs are symmetric along the y-axis?

- $y = x^3 - x^2 + 6$
- $y = x^3 - x^4 + 6$
- $y = x^5 - x^3 + 6$
- $y = x^4 - x^2 + 6$
- $y = x^5 + x^3 + 6$

____ 4. Graphically estimate the x- and y-intercepts of the graph.

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



- x-intercept: $(\pm 3, 0)$
y-intercept: $(0, 81)$
- x-intercept: $(3, 0)$
y-intercept: $(0, 81)$
- x-intercept: $(-3, 0)$
y-intercept: $(0, 81)$
- x-intercept: $(\pm 3, 0)$
y-intercept: $(0, 9)$
- x-intercept: $(0, 3)$
y-intercept: $(0, 81)$

____ 5. Write the standard form of the equation of the circle with the given characteristics.

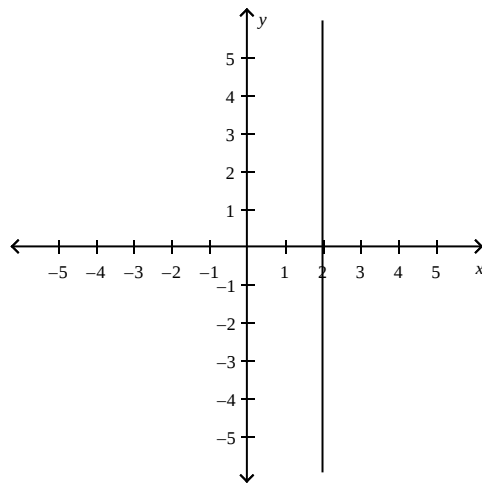
center: $(1, -7)$; radius: 3

- a. $(x+1)^2 + (y-7)^2 = 9$
- b. $(x+7)^2 + (y-1)^2 = 3$
- c. $(x+7)^2 + (y-1)^2 = 9$
- d. $(x-7)^2 + (y+1)^2 = 3$
- e. $(x-1)^2 + (y+7)^2 = 9$

____ 6. Find the slope and y-intercept (if possible) of the equation of the line. Sketch the line.

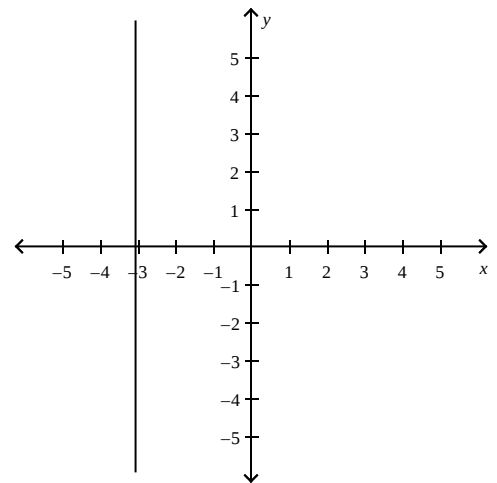
$$x + 3 = 0$$

a.



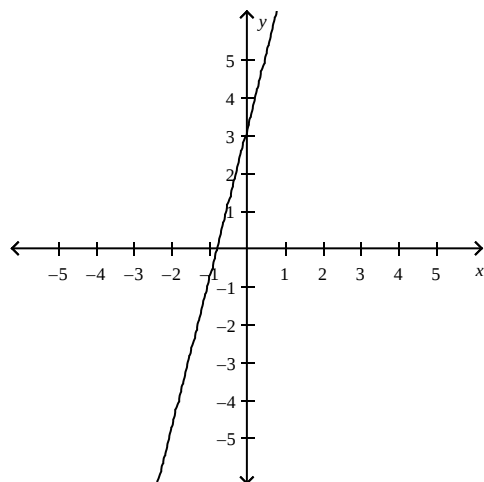
m is undefined.
There is no y-intercept.

d.



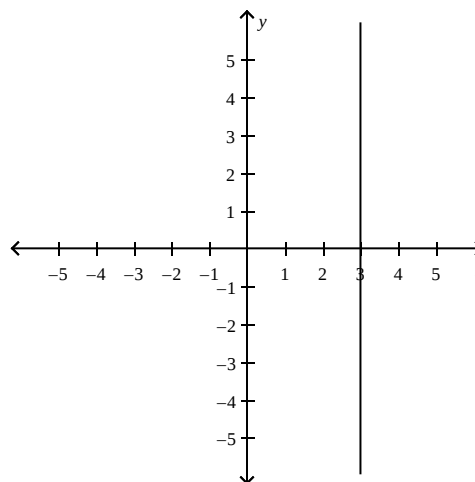
m is undefined.
There is no y-intercept.

b.



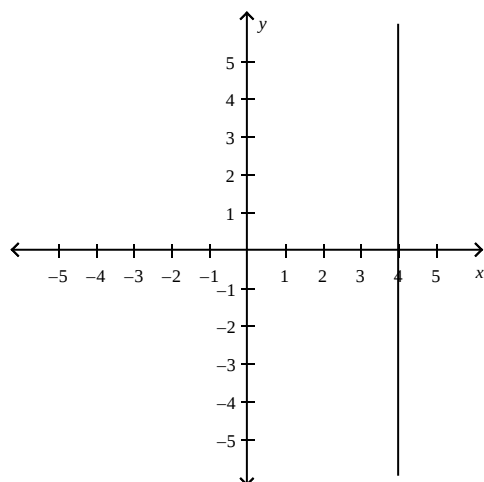
$m = -3$
y-intercept: (0,4)

e.



m is undefined.
There is no y-intercept.

c.



$m = -4$
y-intercept: (0,3)

____ 7. The slope of line representing daily revenues y in terms of time x in years. Use the slopes to interpret any change in daily revenues for a one-day increase in time.

The line has a slope of $m = 600$.

- a. Sales decreasing 600 units/day
- b. No change in sales
- c. Sales increasing 600 units/day
- d. None of the above

_____ 8. Evaluate the function $f(x) = |x|/x$ at $f(-20)$.

- a. 0
- b. -1
- c. 1
- d. -2
- e. -2

_____ 9. Find the domain of the function.

$$h(t) = \frac{3}{t}$$

- a. All real numbers t except $t \neq 0$
- b. Negative real numbers t
- c. All real numbers t such that $t > 0$
- d. Non-negative real numbers t
- e. All real numbers t such that $t < 0$

_____ 10. Does the table describe a function?

Input value	-4	-2	0	2	4
Output value	7	7	7	7	7

- a. No
- b. Yes

_____ 11. Find the average rate of change of the function from $x_1 = 0$ to $x_2 = 3$.

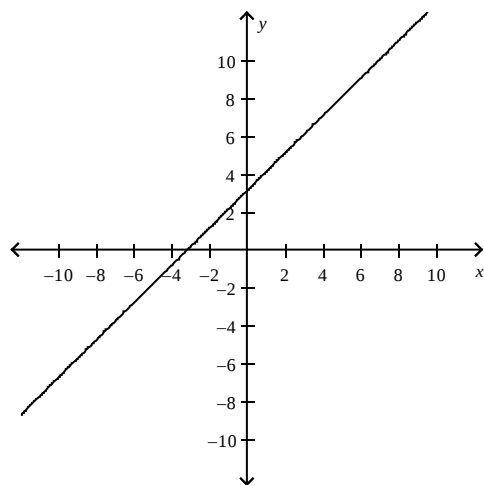
$$f(x) = -4x + 13$$

- a. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is 13.
- b. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is 4.
- c. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is 19.
- d. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is -4.
- e. The average rate of change from $x_1 = 0$ to $x_2 = 3$ is -13.

_____ 12. Select the graph of the given function and determine the interval(s) for which $f(x) \geq 0$.

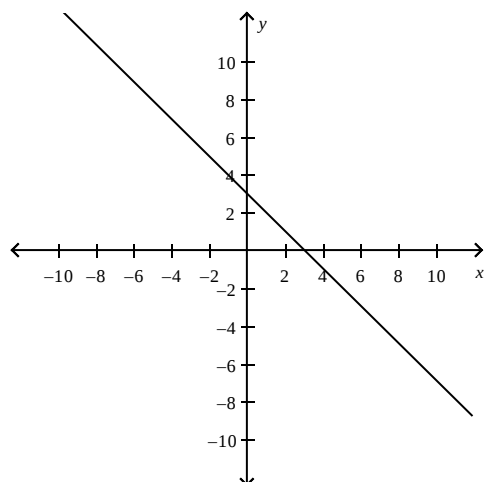
$$f(x) = 3 - x$$

a.



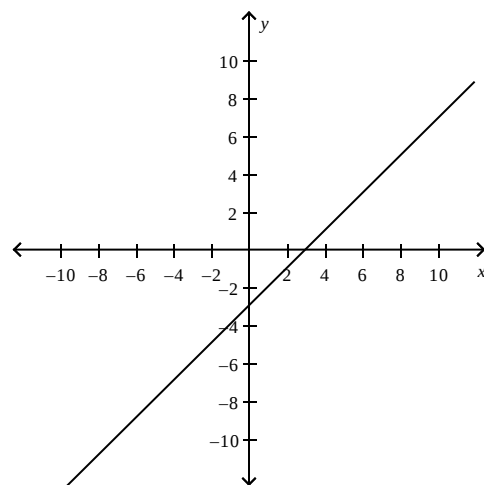
$(-\infty, -3]$

b.



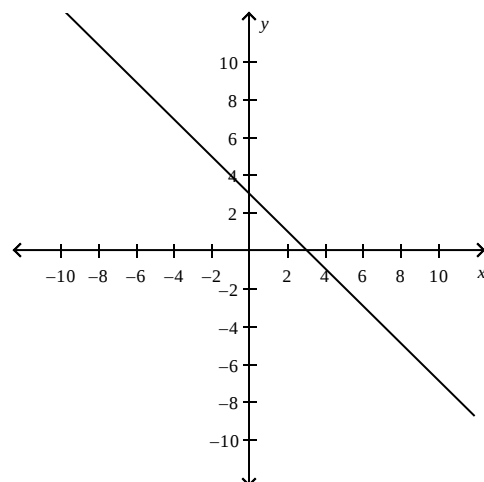
$(-\infty, -3]$

d.



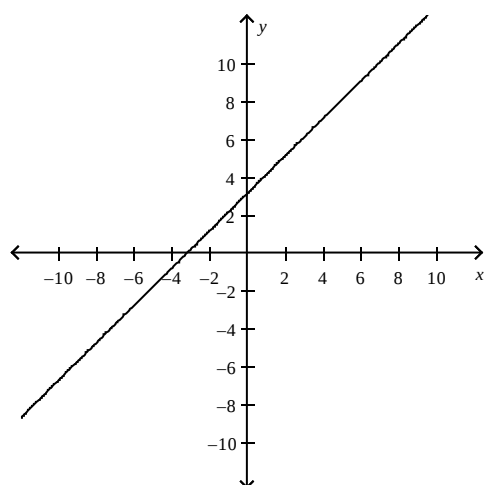
$(-\infty, 3]$

e.



$(-\infty, 3]$

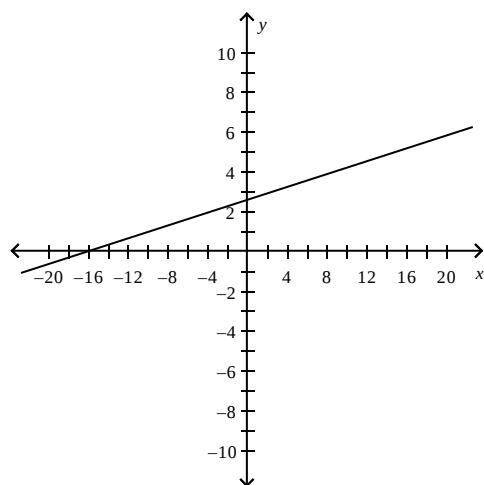
c.

 $(\infty, 3]$

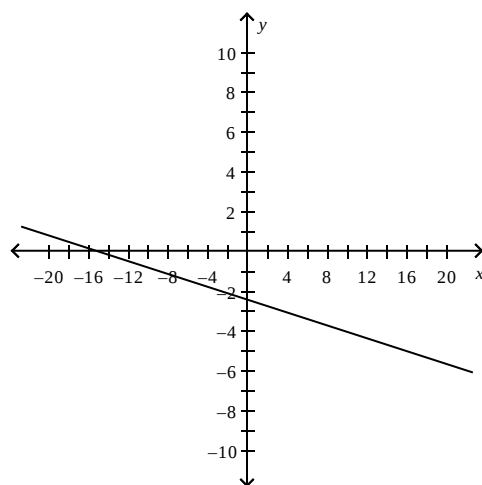
____ 13. Select the correct graph of the given function.

$$f(x) = -\frac{1}{6}x - \frac{5}{2}$$

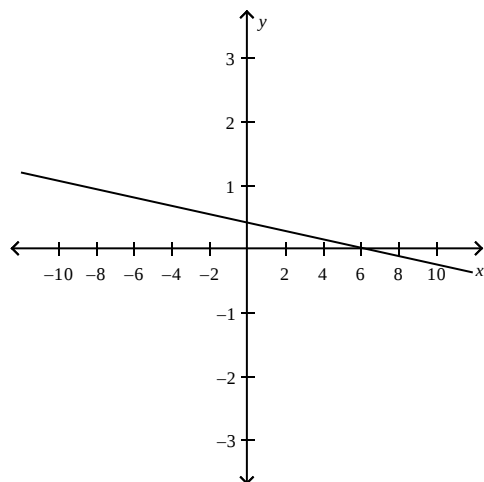
a.



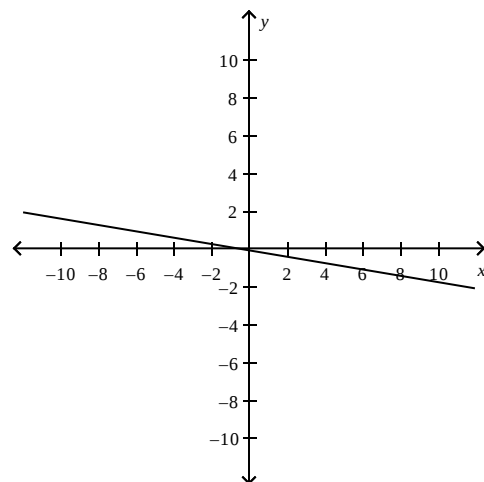
d.



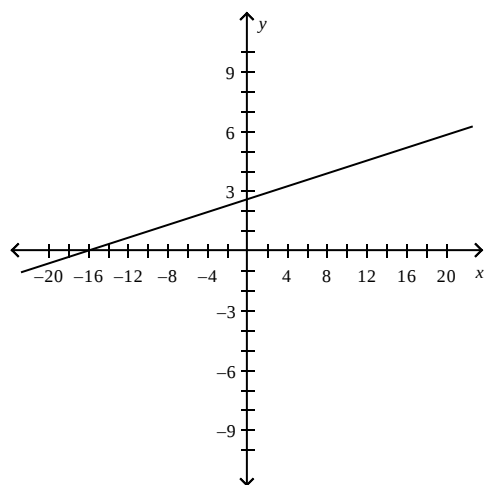
b.



e.



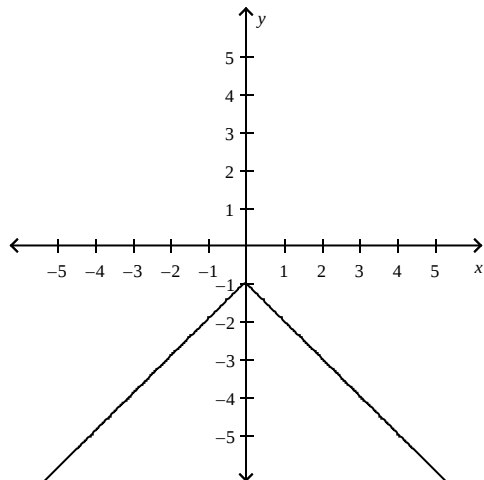
c.



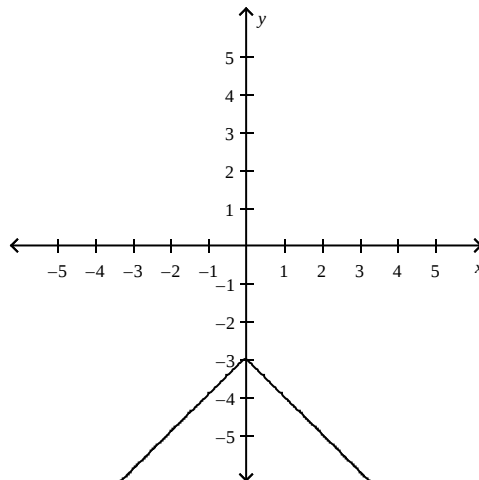
____ 14. Select the correct graph of the given function.

$$f(x) = 1 - |x|$$

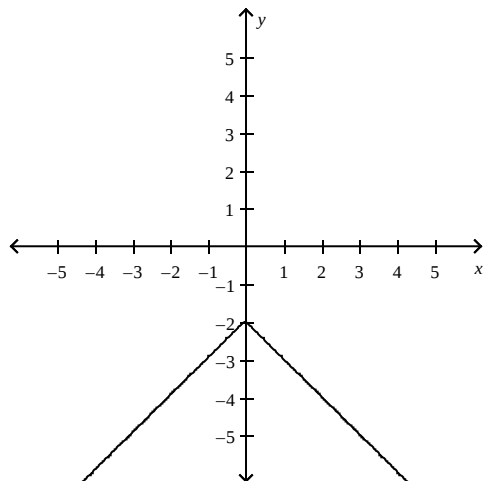
a.



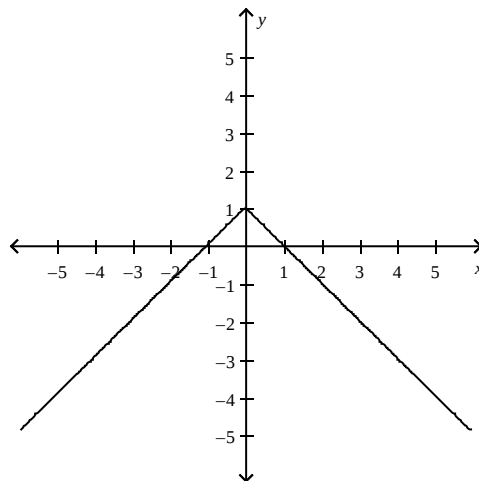
d.



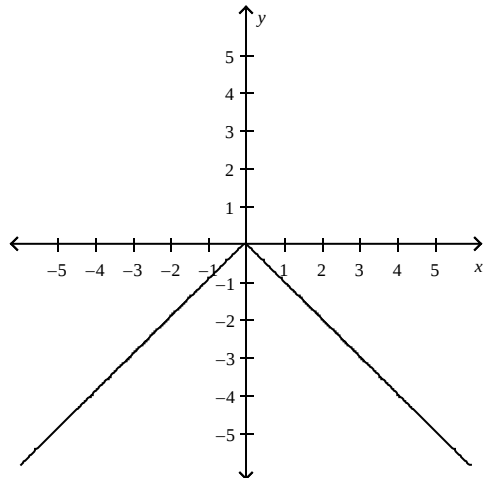
b.



e.



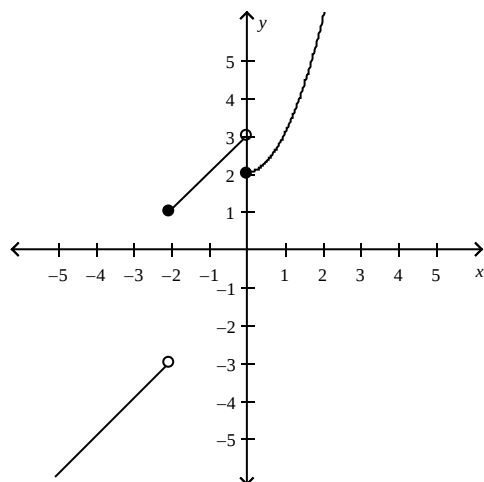
c.



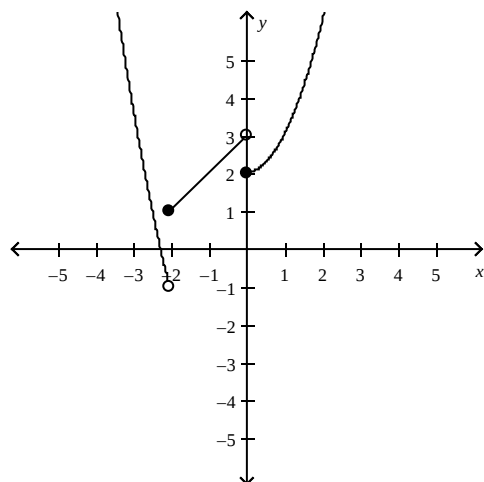
____ 15. Select the graph of the function.

$$f(x) = \begin{cases} 5 - x^2 & x < -2 \\ 3 + x & -2 \leq x < 0 \\ x^2 + 2 & x \geq 0 \end{cases}$$

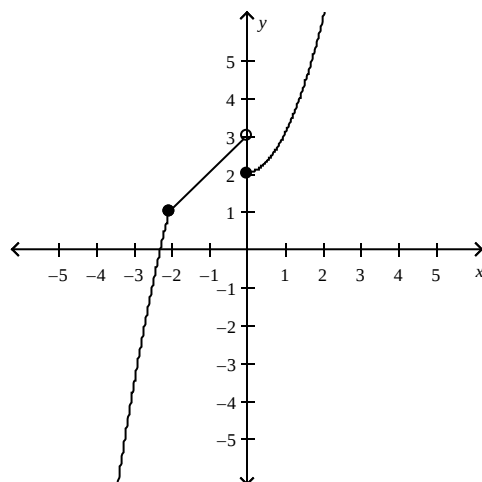
a.



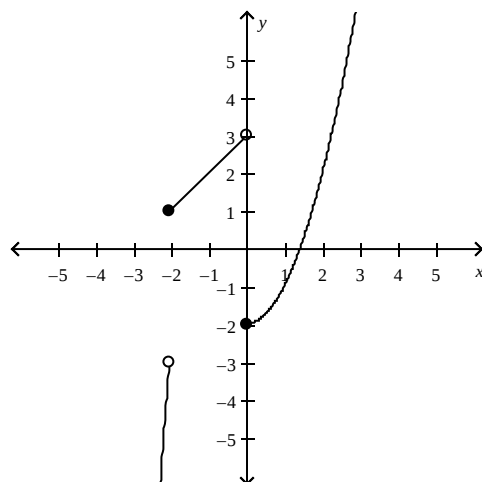
b.



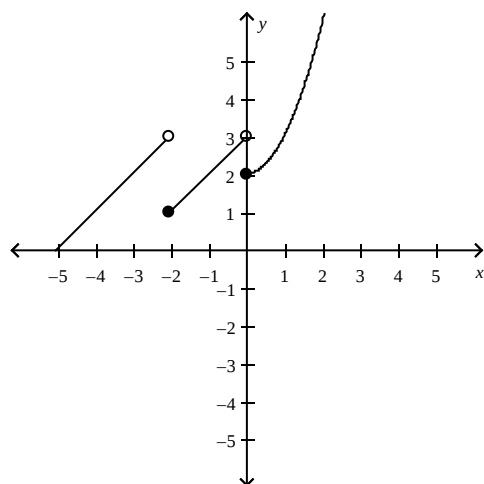
d.



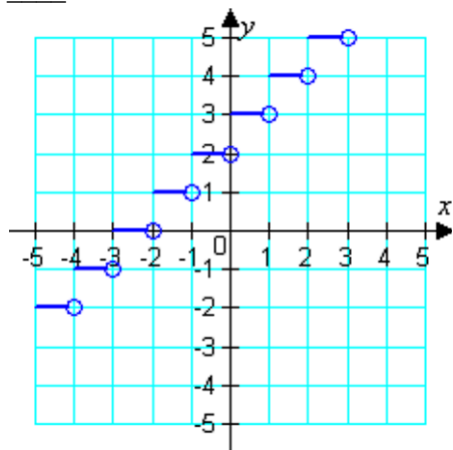
e.



c.

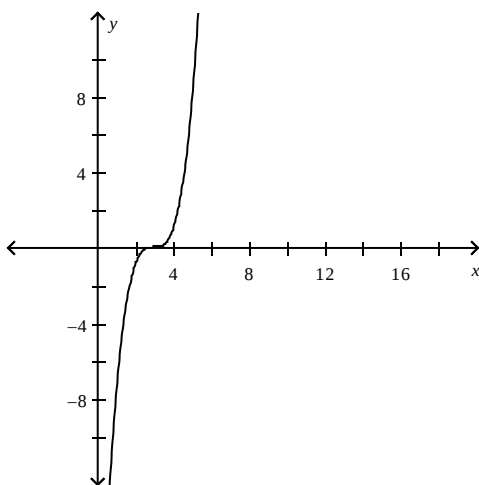


____ 16. Which function does the graph represent?



- a. $g(x) = \llbracket 3x \rrbracket$
- b. $g(x) = \llbracket x + 3 \rrbracket$
- c. $g(x) = 3 \llbracket x \rrbracket$
- d. $g(x) = \llbracket \frac{x}{3} \rrbracket$
- e. $g(x) = \llbracket x - 3 \rrbracket$

____ 17. Identify the parent function and the transformation shown in the graph. Write an equation for the function shown in the graph.



- Horizontal shift of $y = x^3$; $y = (x - 3)^3$
- Vertical shift of $y = x^2$; $y = (x - 3)^2$
- Vertical shift of $y = x^2$; $y = (x + 3)^2$
- Horizontal shift of $y = x^2$; $y = (x + 3)^2$
- Vertical shift of $y = x^3$; $y = (x + 3)^3$

____ 18. g is related to the parent function. Use function notation to write g in terms of f .

$$g(x) = -7|x - 1| - 4$$

- $g(x) = -7f(x - 1) + 4$
- $g(x) = -7f(x + 1) - 4$
- $g(x) = -7f(x - 1) - 4$
- $g(x) = 7f(x - 1) - 4$
- $g(x) = 7f(x + 1) + 4$

_____ 19. Find $(f/g)(x)$.

$$f(x) = \frac{1}{x^2}, \quad g(x) = \frac{1}{x^5}$$

a. $\frac{1}{x^2}$

b. x^7

c. $\frac{1}{x^5}$

d. $\frac{1}{x^7}$

e. x^3

_____ 20. The research and development department of an automobile manufacturer has determined that when a driver is required to stop quickly to avoid an accident, the distance (in feet) the car travels during the driver's reaction time is given by $R(x) = \frac{3}{2}x$, where x is the speed of car in miles per hour. The distance (in feet) traveled while the driver is braking is given by $B(x) = \frac{1}{15}x^2$. Find the function that represents the total stopping distance T .

a. $T = -\frac{3}{2}x + \frac{1}{15}x^2$

b. $T = \frac{3}{2}x - \frac{1}{15}x^2$

c. $T = \frac{3}{2}x^2 + \frac{1}{15}x^2$

d. $T = -\frac{3}{2}x - \frac{1}{15}x^2$

e. $T = \frac{3}{2}x + \frac{1}{15}x^2$

____ 21. Find $(f/g)(x)$.

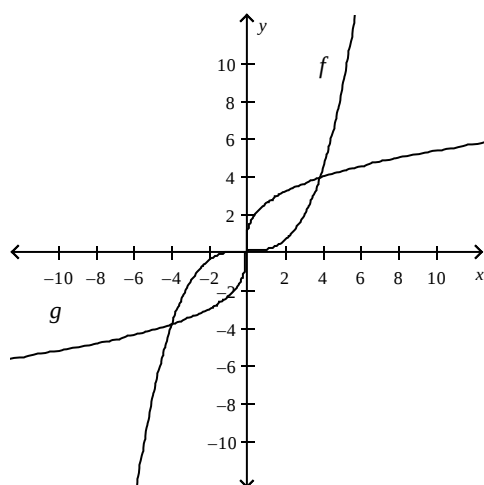
$$f(x) = x^2 + 7x \quad g(x) = -2 - x$$

- a. $(f/g)(x) = \frac{x^2 + 7x}{-2 - x}, x \neq 0$
- b. $(f/g)(x) = \frac{x+7}{-2}, x \neq 0$
- c. $(f/g)(x) = -\frac{x^2}{2} - 7, x \neq 0$
- d. $(f/g)(x) = \frac{x^2 + 7x}{-2 - x}, x \neq -2$
- e. $(f/g)(x) = \frac{x^2 + 7x}{-2 - x}, x \neq 2$

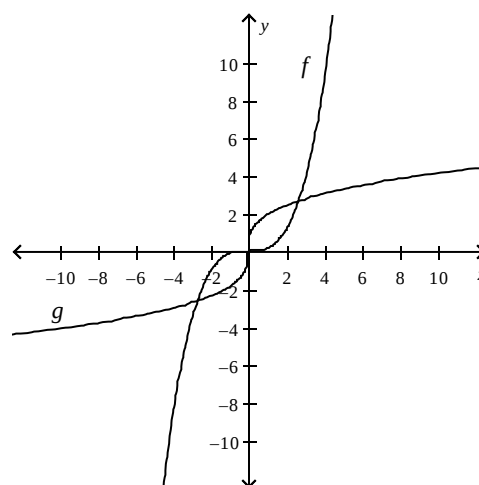
____ 22. Select the correct graph, showing f and g are inverse functions.

$$f(x) = \frac{x^3}{7}, \quad g(x) = \sqrt[3]{7x}$$

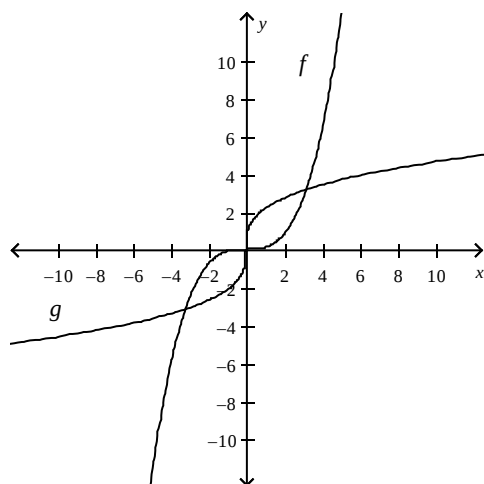
a.



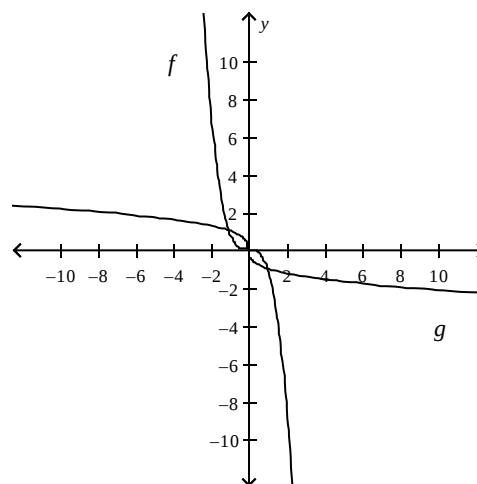
d.



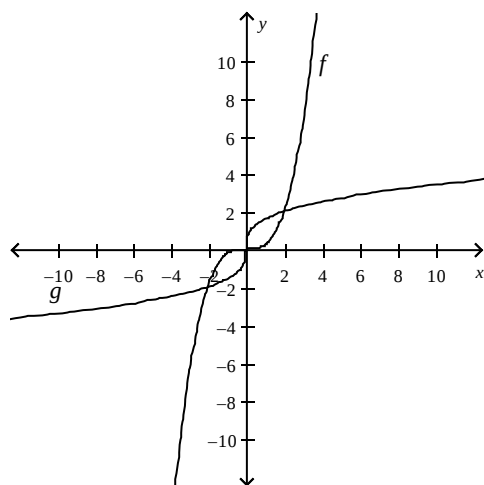
b.



e.



c.



____ 23. Determine whether the function has an inverse function. If it does, find the inverse function.

$$g(x) = \frac{x}{4}$$

a. $g^{-1}(x) = -4x$

b. $g^{-1}(x) = 4x$

c. $g^{-1}(x) = \frac{4}{x}$

d. $g^{-1}(x) = -\frac{x}{4}$

e. No inverse