

## Chapter 2, Test Form A

Name: \_\_\_\_\_

1. Evaluate  $f(-2)$  if  $f(x) = 4 - 3x^2$ .

1. \_\_\_\_\_

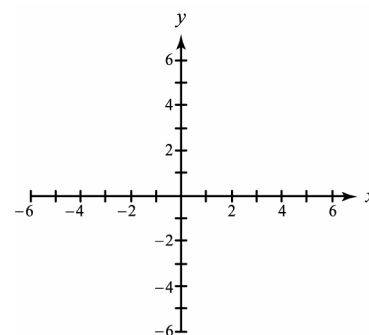
2. Write a symbolic representation (formula) for a function  $S$  that calculates the number of seconds in  $x$  minutes.  
Evaluate  $S(4)$  and interpret your result.

2. \_\_\_\_\_

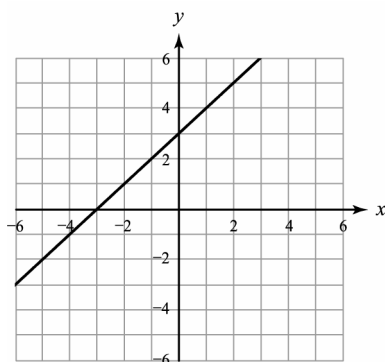
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3. Sketch a graph of  $f(x) = x^2 - 2$ .

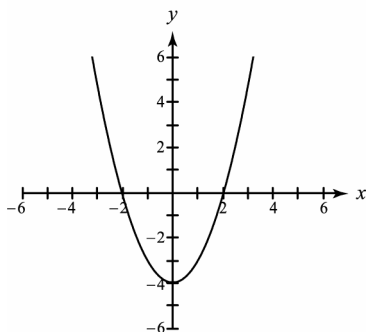
3.

4. Use the graph of  $f$  to evaluate  $f(-1)$ .

4. \_\_\_\_\_

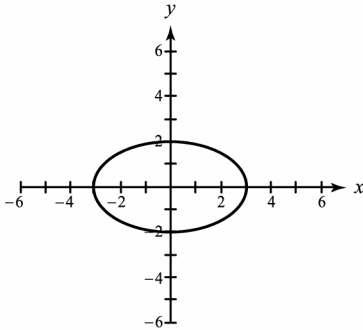
5. Determine the domain and range of  $f$ .

5. \_\_\_\_\_



6. A function  $f$  is represented verbally by “Square the input  $x$  and then add 3.” Give a symbolic representation of  $f$ . 6. \_\_\_\_\_

7. Determine whether the graph represents a function. 7. \_\_\_\_\_



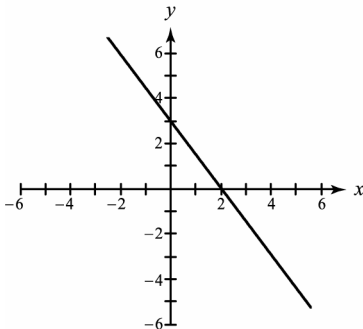
8. Find the domain of  $f(x) = \frac{3}{4}x + 7$ . 8. \_\_\_\_\_

9. Find the slope and y-intercept of the graph of  $y = 3x - \frac{5}{2}$ . 9. \_\_\_\_\_

\_\_\_\_\_

10. Find the slope of the line passing through  $(\frac{1}{2}, -2)$  and  $(0, -3)$ . 10. \_\_\_\_\_

11. Determine the slope of the line shown in the graph. 11. \_\_\_\_\_



12. Write the slope-intercept form of a line with  $x$ -intercept  $-2$  and  $y$ -intercept  $\frac{3}{2}$ . 12. \_\_\_\_\_

13. Write the slope-intercept form of the line passing through  $(1,3)$  and  $(\frac{1}{2},1)$ . 13. \_\_\_\_\_

14. Let  $f$  be a linear function. Find the slope of the graph of  $f$ . 14. \_\_\_\_\_

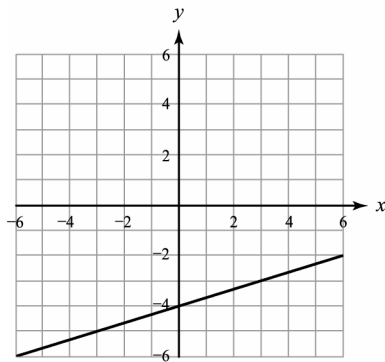
$x$	-4	-2	-1	0	1
$f(x)$	-6	0	3	6	9

15. Let  $f$  be a linear function. Find the  $x$ - and  $y$ -intercepts of the graph of  $f$ . 15. \_\_\_\_\_  
\_\_\_\_\_

$x$	-2	0	1	2	3
$f(x)$	8	4	2	0	-2

16. Give the slope-intercept form of a line parallel to  $y = 5 - 4x$ , passing through  $(\frac{1}{2}, 1)$ . 16. \_\_\_\_\_

17. Find the slope-intercept form for the line shown in the graph. 17. \_\_\_\_\_



18. Use the graph in #17 to find the equation of a line that passes through the origin and is perpendicular to the given line. 18. \_\_\_\_\_

19. Find an equation of the vertical line passing through the point  $\left(\frac{1}{2}, -\frac{3}{4}\right)$ . 19. \_\_\_\_\_

20. Find an equation of the horizontal line passing through the point  $\left(-\frac{2}{3}, 1\right)$ . 20. \_\_\_\_\_

1. Evaluate  $f(-2)$  if  $f(x) = -3x + 1$ .

1. \_\_\_\_\_

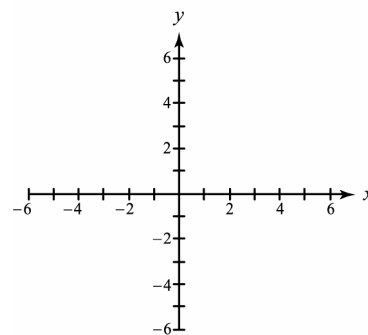
2. Write a symbolic representation (formula) for a function  $C$  that calculates the cost of  $x$  gallons of gasoline at \$2.50 per gallon. Evaluate  $C(10)$  and interpret your result.

2. \_\_\_\_\_

\_\_\_\_\_

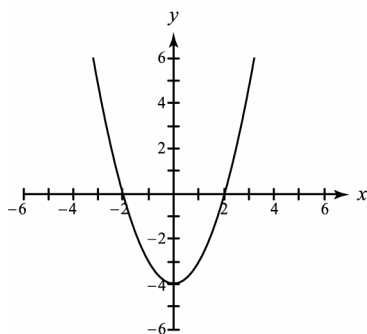
3. Sketch a graph of  $f(x) = x + 3$ .

3.



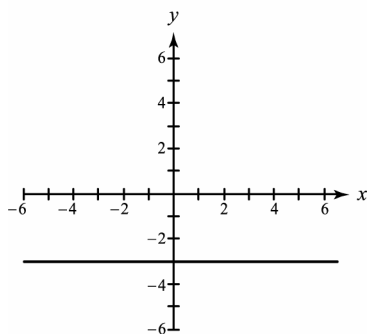
4. Use the graph of  $f$  to evaluate  $f(2)$ .

4. \_\_\_\_\_



5. Determine the domain and range of  $f$ .

5. \_\_\_\_\_

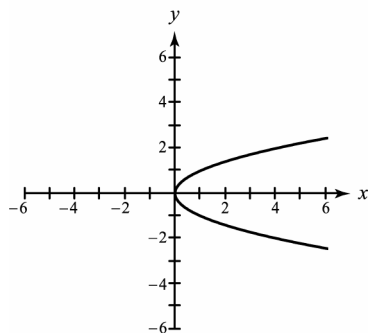


6. A function  $f$  is represented verbally by “Cube the input  $x$  and then subtract 4.” Give a symbolic representation of  $f$ .

6. \_\_\_\_\_

7. Determine whether the graph represents a function.

7. \_\_\_\_\_



8. Find the domain of  $f(x) = \sqrt{x-5}$ .

8. \_\_\_\_\_

9. Find the slope and y-intercept of the graph of  $y = 2x - 3$ .

9. \_\_\_\_\_

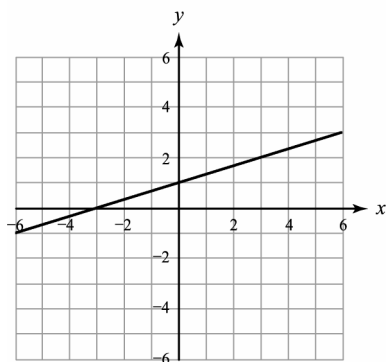
\_\_\_\_\_

10. Find the slope of the line passing through  $(1, 3)$  and  $(\frac{1}{2}, 1)$ .

10. \_\_\_\_\_

11. Determine the slope of the line shown in the graph.

11. \_\_\_\_\_



12. Write the slope-intercept form of a line with  $x$ -intercept  $-1$  and  $y$ -intercept  $\frac{5}{3}$ .

12. \_\_\_\_\_

13. Write the slope-intercept form of the line passing through the points  $\left(\frac{3}{2}, 2\right)$  and  $\left(1, \frac{1}{2}\right)$ .

13. \_\_\_\_\_

14. Let  $f$  be a linear function. Find the slope of the graph of  $f$ .

14. \_\_\_\_\_

$x$	-2	0	2	3	4
$f(x)$	6	4	2	1	0

15. Let  $f$  be a linear function. Find the  $x$ - and  $y$ -intercepts of the graph of  $f$ .

15. \_\_\_\_\_

$x$	-2	-1	0	1	2
$f(x)$	9	6	3	0	-3

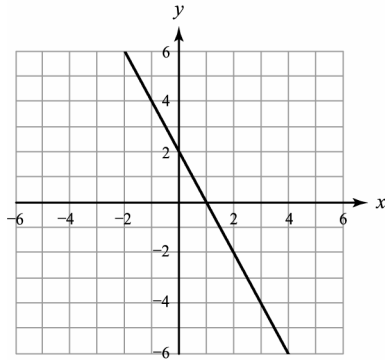
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16. Give the slope-intercept form of a line perpendicular to  $y = -\frac{3}{5}x - 2$ , passing through  $(6, -2)$ .

16. \_\_\_\_\_

17. Find the slope-intercept form for the line shown in the graph.

17. \_\_\_\_\_



18. Use the graph in #17 to find the equation of a line that passes through the origin and is perpendicular to the given line.

18. \_\_\_\_\_

19. Find an equation of the vertical line passing through the point  $\left(-\frac{2}{3}, 1\right)$ .

19. \_\_\_\_\_

20. Find an equation of the horizontal line passing through the point  $\left(\frac{3}{2}, -\frac{1}{2}\right)$ .

20. \_\_\_\_\_



1. For the years 1890 to 1960, the median age for a man's first marriage can be modeled by  $f(x) = -0.0492x + 119.1$ , where  $x$  is the year. Find the median age in 1930. Round answer to the nearest year.

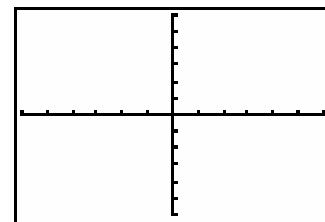
1. \_\_\_\_\_

2. The median price of a single-family home during the years 1990 to 2000 can be approximated by  $P(x) = 5421x + 89,000$ , where  $x = 0$  corresponds to the year 1990 and  $x = 10$  corresponds to the year 2000. Find the median price of a single-family home in 1998.

2. \_\_\_\_\_

3. Use your graphing calculator to graph  $f(x) = -3x + 5$ .

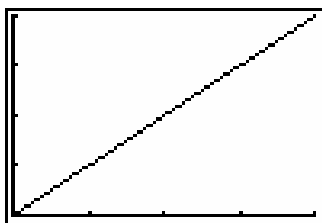
3. \_\_\_\_\_



[−6, 6, 1] by [−6, 6, 1]

4. Susan begins driving along a country road at a rate of 40 mph. The graph illustrates the distance from her place of origin after  $t$  hours. How far has Susan traveled after 3 hours?

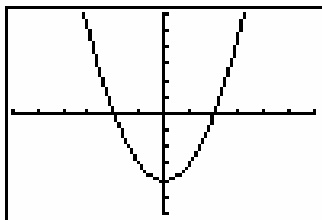
4. \_\_\_\_\_



[0, 4, 1] by [0, 160, 40]

5. Determine the domain and range of  $f$ .

5. \_\_\_\_\_

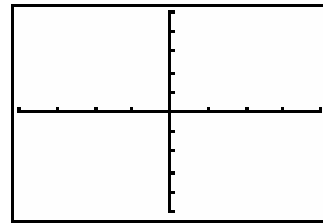


[−6, 6, 1] by [−6, 6, 1]

6. A function  $f$  is represented verbally by “Square the input  $x$  and then subtract 4.” Give symbolic, numerical and graphical representations of  $f$ . Let  $x = -3, -2, -1, \dots, 3$  in the numerical representation (table) and let  $-4 \leq x \leq 4$  for the graph.

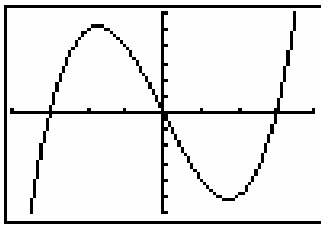
6. \_\_\_\_\_

$x$	$y$	



$[-4, 4, 1]$  by  $[-5, 5, 1]$

7. Determine whether the graph represents a function.



$[-4, 4, 1]$  by  $[-6, 6, 1]$

7. \_\_\_\_\_

8. Find the domain of  $f(x) = |x - 2.5|$ .

8. \_\_\_\_\_

9. The monthly cost of operating a car can be modeled by the linear function  $C(x) = 0.39x + 395$ , where  $x$  represents the number of miles driven.

(a) Find the slope of the graph of the function.  
What does the slope represent?

9. (a) \_\_\_\_\_

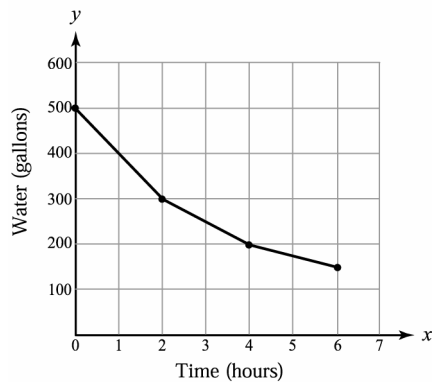
(b) Find the y-intercept of the graph of the function.  
What does the y-intercept represent?

(b) \_\_\_\_\_

10. In 1994, tuition and fees at a public four-year college were \$2125. In 1997, tuition and fees increased to \$2689. What was the average yearly increase in fees from 1994 to 1997?

10. \_\_\_\_\_

11. The graph represents the amount of water (in gallons) remaining in a tank after  $t$  hours. At what rate was water being drained from the tank when  $2 \leq t \leq 4$ ?



11. \_\_\_\_\_

12. Write the slope-intercept form of a line with  $x$ -intercept 1.29 and  $y$ -intercept  $-2.58$ .

12. \_\_\_\_\_

13. On Labor Day 2000, there were 24.8 travelers (in millions). On Labor Day 2004, there were 29.2 travelers (in millions). Let  $x$  represent the number of years since 2000. Write the slope-intercept equation of the line that passes through  $(0, 24.8)$  and  $(4, 29.2)$ .

13. \_\_\_\_\_

14. The following table shows equivalent temperatures in degrees Celsius and degrees Fahrenheit. This data can be modeled by a linear function. Use your graphing calculator to find the slope of the graph of that function.

$C$	$-40^\circ$	$0^\circ$	$15^\circ$	$35^\circ$	$100^\circ$
$F$	$-40^\circ$	$32^\circ$	$59^\circ$	$95^\circ$	$212^\circ$

14. \_\_\_\_\_

15. (a) Find the  $y$ -intercept of the graph of the linear function modeled in #14.  
(b) What does the  $y$ -intercept represent?

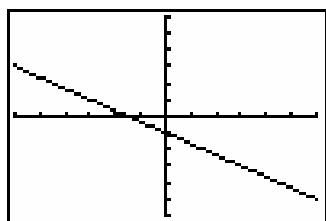
15. (a) \_\_\_\_\_

(b) \_\_\_\_\_

16. Give the slope-intercept form of a line parallel to  $y = 1.28x - 7.18$ , passing through  $(2, 3.17)$ .

16. \_\_\_\_\_

17. Find the slope-intercept form for the line shown in the graph. 17. \_\_\_\_\_

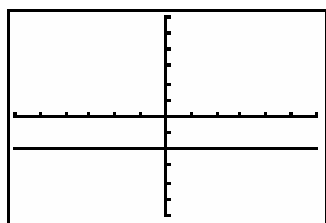


$[-6, 6, 1]$  by  $[-6, 6, 1]$

18. Use the graph in #17 to find the equation of a line that passes through the origin and is parallel to the given line. 18. \_\_\_\_\_

19. Find an equation of the horizontal line in the graph.

19. \_\_\_\_\_



$[-6, 6, 1]$  by  $[-6, 6, 1]$

20. From 1980 to 1997, the number of U.S. marriages (in millions) could be modeled by  $f(x) = 2.4x$ , where  $x$  represents the years since 1980. Estimate the number of marriages in 1986.

20. \_\_\_\_\_

1. Evaluate  $f(-3)$  if  $f(x) = -x^2 + 2$ .

1. \_\_\_\_\_

(a) 11

(b) -7

(c) -11

(d) -1

2. Evaluate  $f(2)$  if  $f(x) = -5x + 6$ .

2. \_\_\_\_\_

(a) -4

(b) -16

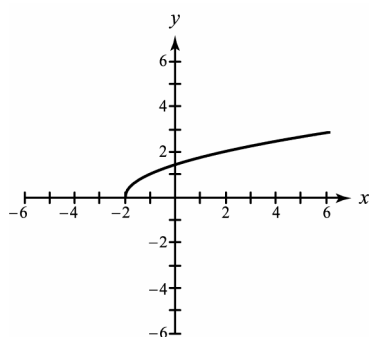
(c) 16

(d) 4

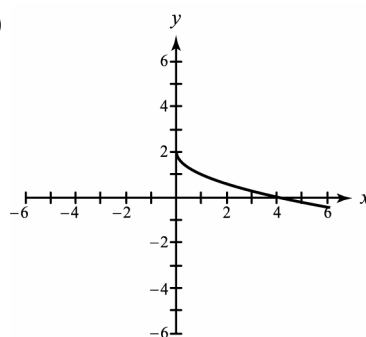
3. Sketch a graph of  $f(x) = \sqrt{x} - 2$ .

3. \_\_\_\_\_

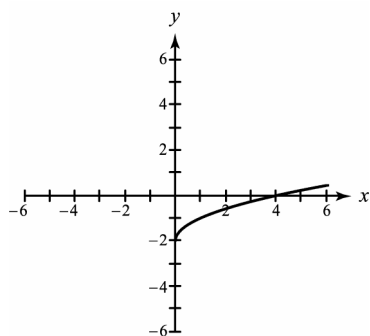
(a)



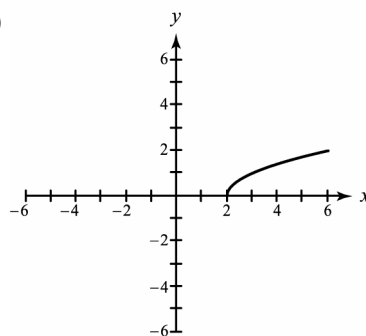
(b)



(c)

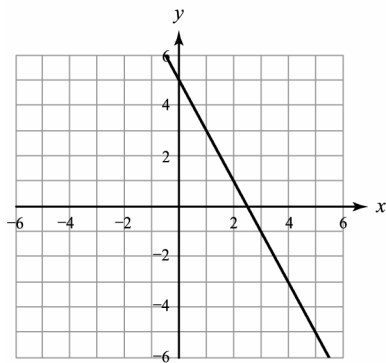


(d)



4. Use the graph of  $f$  to evaluate  $f(1)$ .

4. \_\_\_\_\_



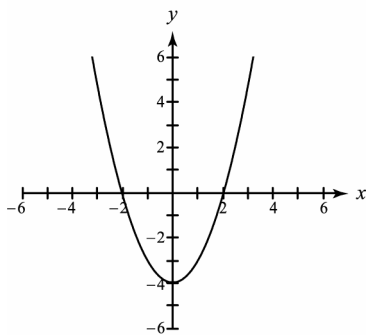
- (a) 2                      (b) 7

(c) 1

(d) 3

5. Determine the range of  $f$ .

5. \_\_\_\_\_



- (a)  $-4 \leq y \leq 2$                       (b)  $-2 \leq y \leq 2$                       (c)  $y \geq -4$                       (d) all real numbers

6. A function  $f$  is represented verbally by “Cube the input  $x$  and then add 4.”  
Give a symbolic representation of  $f$ .

6. \_\_\_\_\_

(a)  $f(x) = \sqrt[3]{x+4}$

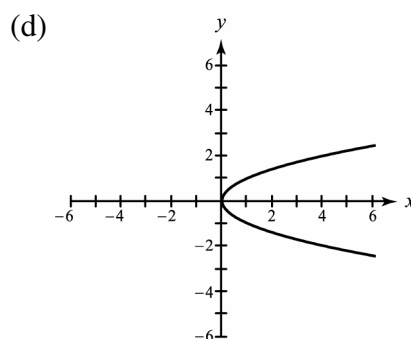
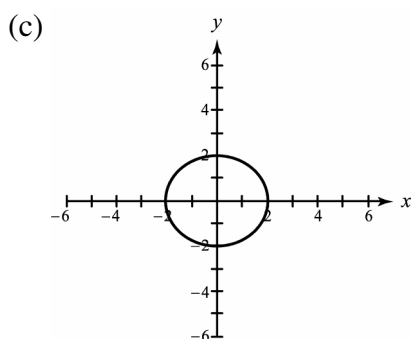
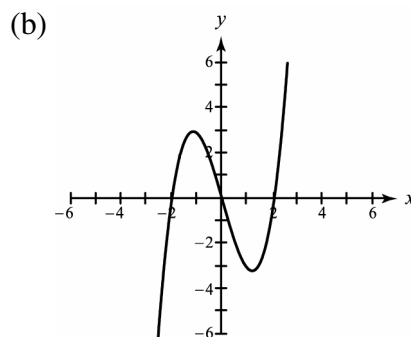
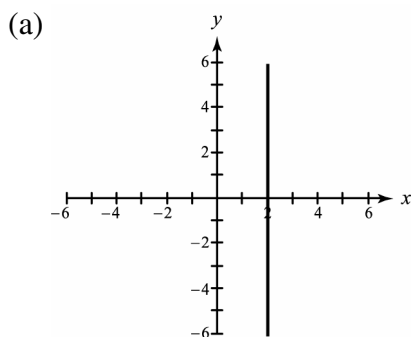
(b)  $f(x) = x^3 + 4$

(c)  $f(x) = x^3 + 64$

(d)  $f(x) = (x+4)^3$

7. Determine which graph represents a function.

7. \_\_\_\_\_



8. Find the domain of  $f(x) = -\frac{2x}{x+4}$ .

8. \_\_\_\_\_

(a)  $x \neq -4$

(b)  $x \leq 4$

(c)  $x \neq 0$

(d)  $x \geq 0$

9. Find the slope and y-intercept of the graph of the linear equation  $y = 3x - \frac{5}{2}$ .

9

(a)  $m = 3; \left(\frac{5}{6}, 0\right)$

(b)  $m = -\frac{1}{3}; \left(-\frac{5}{2}, 0\right)$

(c)  $m = -\frac{1}{3}; \left(0, \frac{5}{6}\right)$

(d)  $m = 3; \left(0, -\frac{5}{2}\right)$

10. Find the slope of the line passing through  $\left(\frac{3}{2}, 2\right)$  and  $\left(1, \frac{1}{2}\right)$ .

10. \_\_\_\_\_

(a) 1

(b) 3

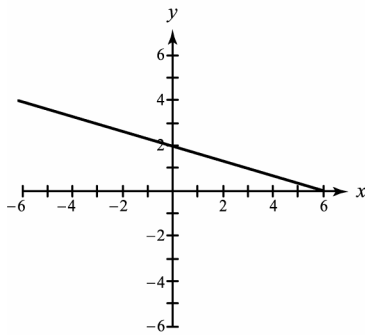
(c)  $\frac{1}{3}$

(d) -1

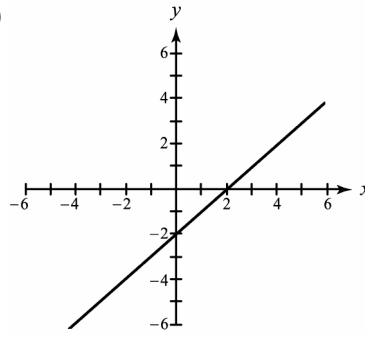
11. Determine which line has a slope of  $\frac{1}{3}$ .

11. \_\_\_\_\_

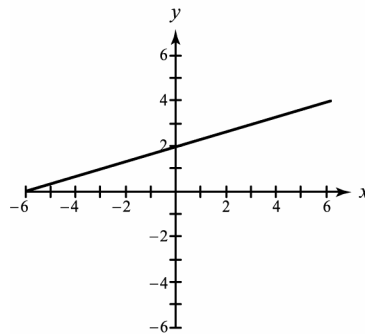
(a)



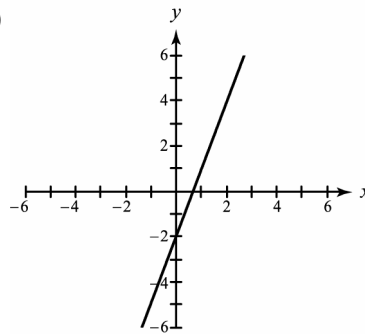
(b)



(c)



(d)



12. Write the slope-intercept form of the line with  $x$ -intercept 3 and  $y$ -intercept  $\frac{3}{4}$ .

12. \_\_\_\_\_

(a)  $y = -\frac{1}{4}x + 3$

(b)  $y = 4x - 12$

(c)  $y = -\frac{1}{4}x + \frac{3}{4}$

(d)  $y = 4x + 3$

13. Find the slope-intercept form of the line passing through  $(\frac{1}{2}, -2)$  and  $(0, -3)$ .

13. \_\_\_\_\_

(a)  $y = \frac{1}{2}x + \frac{5}{4}$

(b)  $y = \frac{1}{2}x - 3$

(c)  $y = 2x - 3$

(d)  $y = 2x + 1$

14. Let  $f$  be a linear function. Find the slope of the graph of  $f$ .

14. \_\_\_\_\_

$x$	-2	0	1	2	4
$y$	8	4	2	0	-4

(a) -2

(b) 4

(c) -4

(d) 2



15. Let  $f$  be a linear function. Find the  $x$ - and  $y$ -intercepts of the graph of  $f$ . 15. \_\_\_\_\_

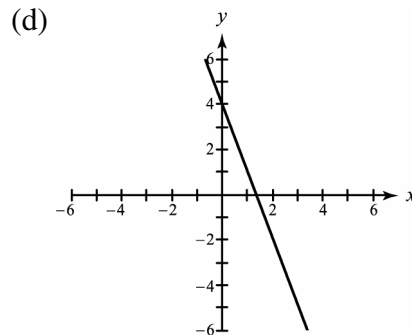
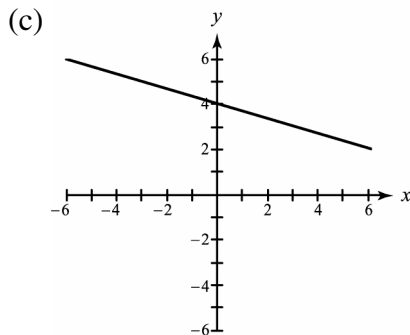
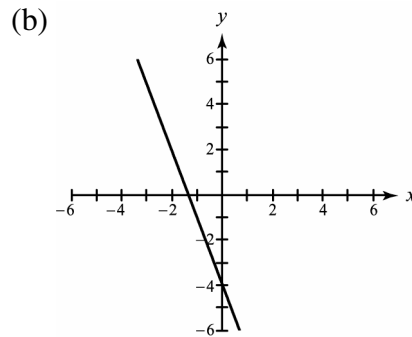
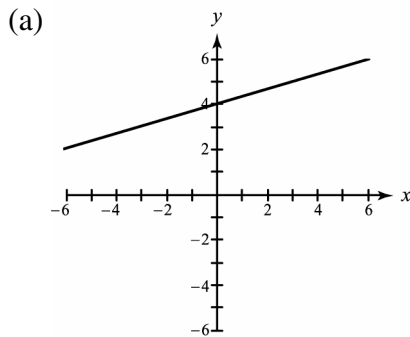
$x$	-4	-2	-1	0	1
$y$	-6	0	3	6	9

- (a)  $x$ -int :  $(0,6)$       (b)  $x$ -int :  $(0,-2)$       (c)  $x$ -int :  $(6,0)$       (d)  $x$ -int :  $(-2,0)$   
 $y$ -int :  $(-2,0)$        $y$ -int :  $(6,0)$        $y$ -int :  $(0,-2)$        $y$ -int :  $(0,6)$

16. Give the slope-intercept form of a line perpendicular to  $y = \frac{2}{3}x + 7$ , passing through  $(4, -3)$ . 16. \_\_\_\_\_

- (a)  $y = -\frac{3}{2}x + 3$       (b)  $y = \frac{2}{3}x - \frac{17}{3}$       (c)  $y = \frac{2}{3}x - 7$       (d)  $y = -\frac{3}{2}x - 3$

17. Find the graph of the linear equation  $y = -3x + 4$ . 17. \_\_\_\_\_



18. Find the equation of a line that passes through the origin and is perpendicular to the line given in #17. 18. \_\_\_\_\_

- (a)  $y = -3x$       (b)  $y = \frac{1}{3}x$       (c)  $x = -3y + 4$       (d)  $y = \frac{1}{3}x + 4$

19. Find an equation of the vertical line passing through the point  $\left(\frac{3}{2}, -\frac{1}{2}\right)$ . 19. \_\_\_\_\_

(a)  $\frac{3}{2}x - \frac{1}{2}y = 0$       (b)  $x = \frac{3}{2}$       (c)  $y = -\frac{1}{2}$       (d)  $y = \frac{3}{2}x - \frac{1}{2}$

20. Find an equation of the horizontal line passing through the point  $\left(\frac{1}{2}, -\frac{3}{4}\right)$ . 20. \_\_\_\_\_

(a)  $y = -\frac{3}{4}$       (b)  $y = \frac{1}{2}x - \frac{3}{4}$       (c)  $x = \frac{1}{2}$       (d)  $\frac{1}{2}x - \frac{3}{4}y = 0$