

1. Find the slope and y-intercept of $x + 8y - 1 = 0$.

- a. $m = \frac{1}{8}; \left(0, \frac{1}{8}\right)$
- b. $m = -8; (0, 8)$
- c. $m = 1; (0, 1)$
- d. $m = -\frac{1}{8}; \left(0, \frac{1}{8}\right)$

2. Use the table to answer questions a-f.

X	Y1	Y2
-3	9	-3
-2	4	-1
-1	1	1
0	0	3
1	1	5
2	4	7
3	9	9

- a. What is the average rate of change of Y2 from $x_1 = 2$ to $x_2 = 3$?
- b. What equation corresponds to the data for Y2?
- c. For what value(s) of x is $Y1 = Y2$?
- d. Does the graph of Y2 pass through the origin?
- e. At what point(s) do Y1 and Y2 intersect?
- f. What is the average rate of change of Y1 from $x_1 = 0$ to $x_2 = 1$?

3. Find the equation of a vertical line through the point $(6, -2)$.

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

4. Find the equation of a line through the point $(3, 2)$ and perpendicular to the line $y = 2x$.

- a. $y = 2x - 7$
- b. $y = \frac{1}{2}x + 7$
- c. $y = -\frac{1}{2}x + \frac{7}{2}$
- d. $y = \frac{1}{2}x + \frac{7}{2}$

5. Is the function $f(x) = x^3 - x^2$ odd, even, or neither?
- odd
 - even
 - neither
6. Find the difference quotient $\frac{f(x+h) - f(x)}{h}$ if $f(x) = x^2 + 4x - 2$.
- $2x + h + 4$
 - $2x + h - 2$
 - 1
 - $\frac{x^2 + h^2 + 4x + 4h}{h}$
7. If $f(x) = \begin{cases} 2x + 2, & x < -2 \\ -4x + 5, & x \geq -2 \end{cases}$ what is $f(-4)$?
- 18
 - 8
 - 1
 - 6
8. Which of the following defines y as a function of x ?
- $x^2 + y^2 = 4$
 - $x^2 + y = 4$
 - $x = -3$
 - $x = y^2$
9. Find the equation of a line through the point $(4, -5)$ and parallel to the line $y = 2$.
- $y = 2x - 8$
 - $y = 2x - 13$
 - $y = -5$
 - $y = 4$
10. Find the equation of a line whose x -intercept occurs at $x = -4$ and whose y -intercept occurs at $y = 5$.
- $y = -\frac{4}{5}x + 4$
 - $y = -\frac{5}{4}x + 5$
 - $y = \frac{4}{5}x + 4$
 - $y = \frac{5}{4}x + 5$

11. If $f(x) = 2x + 3$, what is $f(t - 1)$?

- a. $2t - 1$
- b. $2t + 2$
- c. $2t + 1$
- d. $2t + 4$

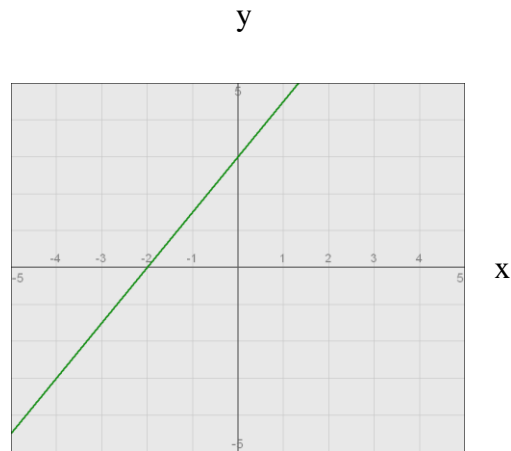
12. Find the equation of a line that passes through the point $(3, 1)$ and is perpendicular to the line $x = 5$.

- a. $x = 3$
- b. $x = 1$
- c. $y = 3$
- d. $y = 1$

13. Which of the following gives the equation of the straight line which crosses the y -axis at the point $(0, -4)$ and has a slope of -6 ?

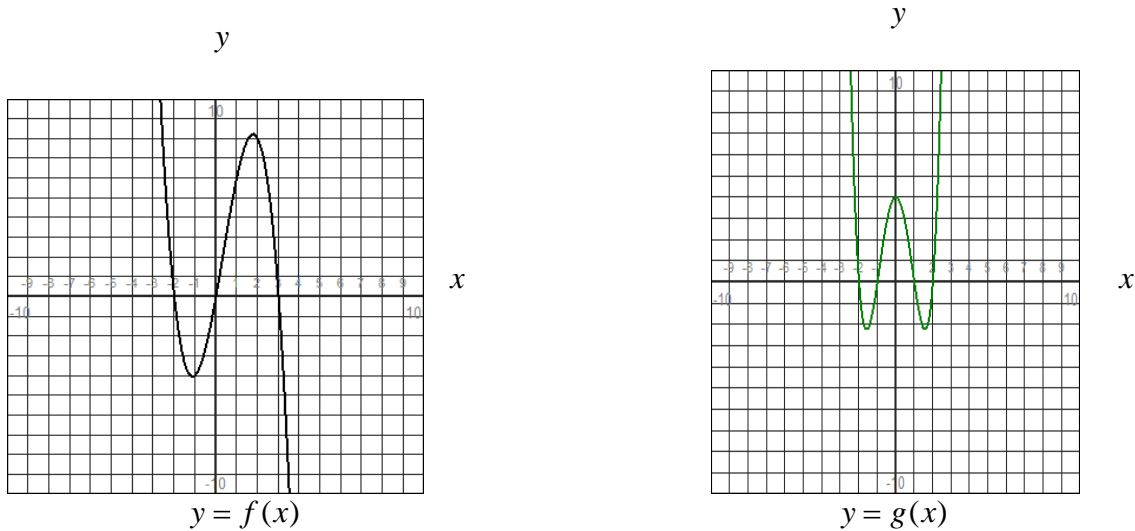
- a. $y = 6x - 4$
- b. $y = -6x - 4$
- c. $y = -4x - 6$
- d. $y = 4x - 6$

14. What is the slope of the straight line graphed on the coordinate plane below? You may assume that each tick mark represents one unit.



- a. $-\frac{3}{2}$
- b. $-\frac{2}{3}$
- c. $\frac{3}{2}$
- d. $\frac{2}{3}$

15. Answer questions a-j for each of the graphs shown below. You may assume that each tick mark represents one unit.



- Explain why both graphs represent functions.
- Find the x - and y -intercepts for both graphs.
- What is the range of $g(x)$?
- On what interval(s) is $g(x)$ decreasing?
- On what interval(s) is $f(x)$ increasing?
- Where is $f(x) < 0$?
- Where is $g(x) > 0$?
- Is $g(x)$ odd, even, or neither? What about $f(x)$?
- Is $f(2)$ positive or negative? Is $g(4)$ positive or negative?
- Find the relative max and/or min of both functions.

16. Determine whether each point lies on the graph of the equation $y = 2x^2 + \frac{1}{5}$.

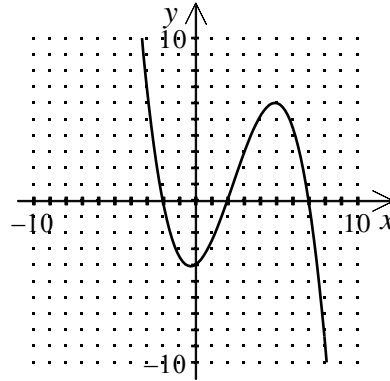
- (a) $\left(-4, \frac{159}{5}\right)$ (b) $\left(5, \frac{251}{5}\right)$

- a. (a) Yes (b) Yes b. (a) No (b) Yes
 c. (a) Yes (b) No d. (a) No (b) No

17. Find the slope-intercept form of the equation of the line through the point $(-5, -8)$ parallel to the line $4x - 8y = 9$.

- a. $y = \frac{1}{2}x - \frac{11}{2}$ b. $y = 2x + \frac{2}{11}$ c. $y = \frac{1}{2}x + \frac{2}{11}$ d. $y = -\frac{1}{2}x - \frac{11}{2}$

18. Find the x - and y -intercepts of the graph.



- a. x -intercepts: $(-2, 0)$, $(2, 0)$, $(-7, 0)$ y -intercept: $(0, 4)$
- b. x -intercepts: $(-2, 0)$, $(2, 0)$, $(7, 0)$ y -intercept: $(0, -4)$
- c. x -intercept: $(0, -4)$ y -intercepts: $(-2, 0)$, $(2, 0)$, $(7, 0)$
- d. x -intercept: $(0, 4)$ y -intercepts: $(-2, 0)$, $(2, 0)$, $(7, 0)$

19. Which of the following is an even function?

- a. $f(x) = 2x^2 - 5x + 1$
- b. $f(x) = \sqrt{3x + 1}$
- c. $f(x) = x^2 - 3$
- d. $f(x) = 2x - 3$

20. If one point on a line is $(2, -6)$ and the line's slope is $-\frac{3}{2}$, what is the x -intercept of the line?

- a. $(-2, 0)$
- b. $(12, 0)$
- c. $(7, 0)$
- d. $(11, 0)$

Key Review Test 1

1. d
2. a. 2
b. $y = 2x + 3$
c. $-1, 3$
d. no
e. $-1, 3$
f. 1
3. a
4. c
5. c
6. a
7. d
8. b
9. c
10. d
11. c
12. d
13. b
14. c
15. a. both pass the vertical line test
b. for f ; $(-2, 0), (0, 0), (3, 0)$
for g ; $(\pm, 0), (\pm 1, 0), (0, 4)$
c. $-2, +\infty$
d. $(-\infty, 1.5), (0, 1.5)$
e. $-1, 2$
f. $(-2, 0), (3, \infty)$
g. $-\infty, -2, -1, 1, 2, +\infty$
h. f is neither and g is even
i. $f(2) > 0$ and $g(4) > 0$
j. f min $(-1, -4)$, max $(2, 8)$; g min $(\pm 1.5, 2)$, max $(0, 4)$
16. b
17. a
18. b
19. c
20. a