

8th Alg1 Ch3 Review

Multiple Choice

Identify the choice that best completes the statement or answers the question.

Find the zero of the function.

_____ 1. $r(x) = \frac{1}{9}x - \frac{1}{7}$

a. $\frac{7}{9}$

b. $-\frac{9}{7}$

c. $-\frac{7}{9}$

d. $\frac{9}{7}$

Determine whether x and y show direct variation. If so, identify the constant of variation.

_____ 2a. $6x - \frac{1}{3}y = 0$

a. yes; $-\frac{1}{18}$

b. yes; 2

c. yes; 18

d. no

_____ 3a. $17x - 4y = 0$

a. yes; $\frac{4}{17}$

b. no

c. yes; $\frac{17}{4}$

d. yes; $-\frac{4}{17}$

_____ 4a. $19x + 19y = 4$

a. no

b. yes; -1

c. yes; 1

d. yes; $-\frac{15}{19}$

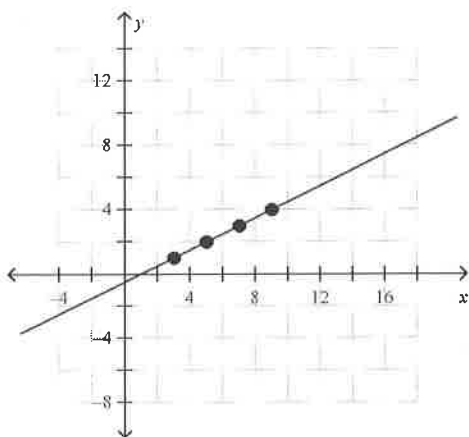
Identify the x and y intercepts in # 2, 3, and 4.
(Either zero out or $\frac{C}{A}$ and $\frac{C}{B}$ to do this). Label these
as 2b, 3b, and 4b on your notebook paper.

Determine whether x and y show direct variation. Explain.

5.

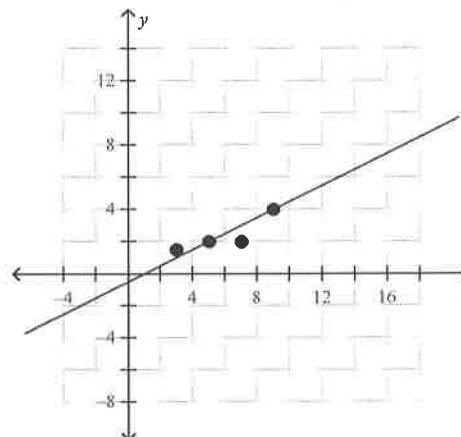
x	3	5	7	9
y	-3.5	-5.5	-7.5	-9.5

a.



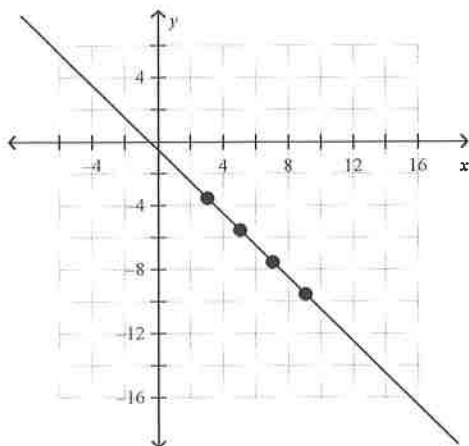
no; The ordered pairs lie on a line that passes through the origin.

c.



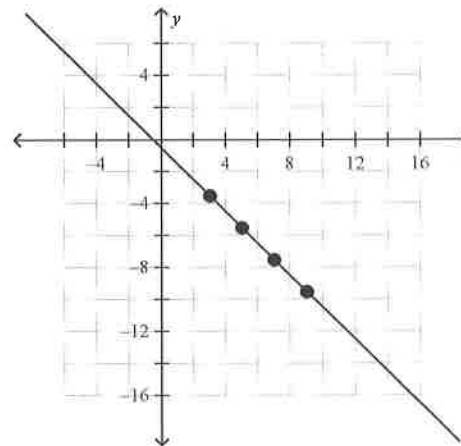
yes; The ordered pairs do not lie on a line.

b.



no; The ordered pairs lie on a line that does not pass through the origin.

d.

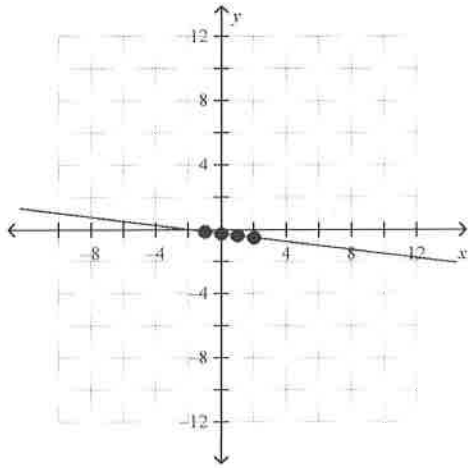


yes; The ordered pairs lie on a line that passes through the origin.

6.

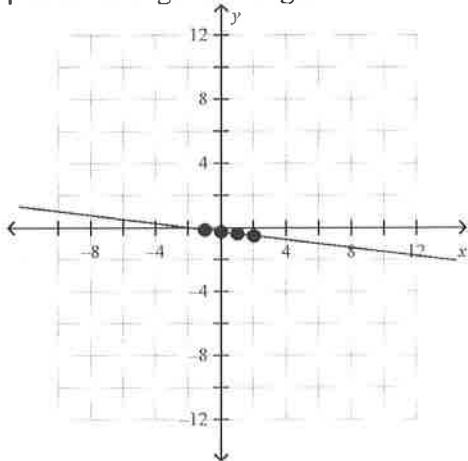
x	-1	0	1	2
y	0.5	-0.25	-1	-1.75

a.



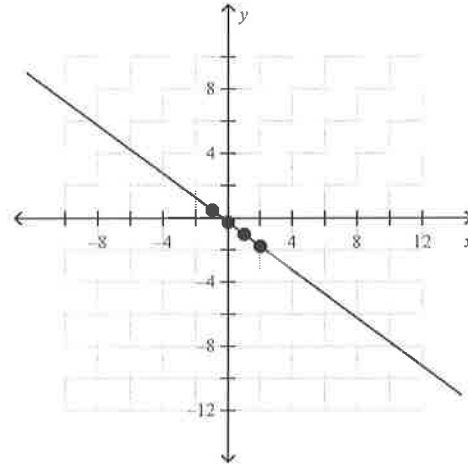
yes; The ordered pairs lie on a line that passes through the origin.

b.



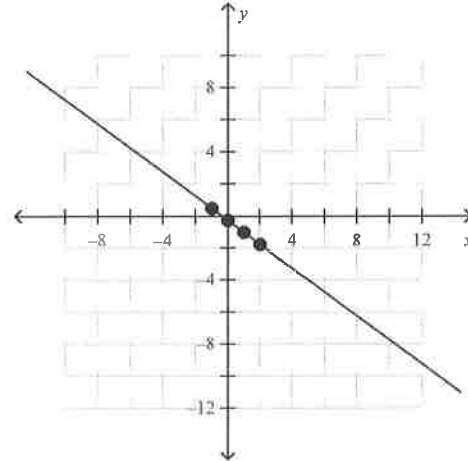
yes; The ordered pairs lie on a line that passes through the origin.

c.



no; The ordered pairs do not lie on a line.

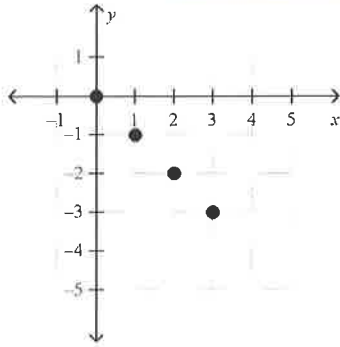
d.



no; The ordered pairs lie on a line that does not pass through the origin.

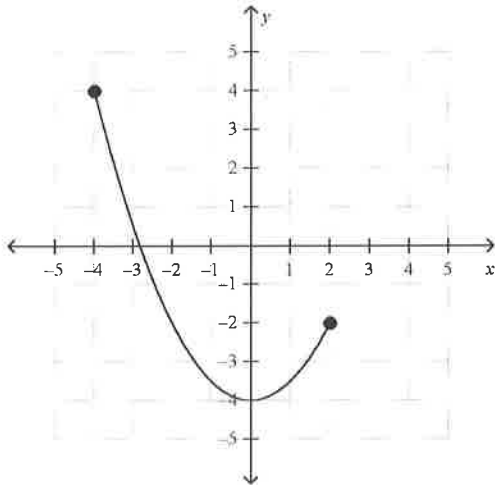
Find the domain and range of the function represented by the graph.

7.



- domain: 1, 2, 3, 4; range: -3, -2, -1, 0
- domain: 0, 1, 2, 3; range: -3, -2, -1, 0
- domain: 1, 2, 3, 4; range: 0, 1, 2, 3
- domain: -3, -2, -1, 0; range: 0, 1, 2, 3

8.



- domain: $-4 \leq x \leq 2$, range: $-4 \leq y \leq 4$
- domain: $-4 < x < 2$, range: $-4 < y < 4$
- domain: $-4 \leq x \leq 4$, range: $-4 \leq y \leq 2$
- domain: $-4 < x < 4$, range: $-4 < y < 2$

Find the value of x so that the function has the given value.

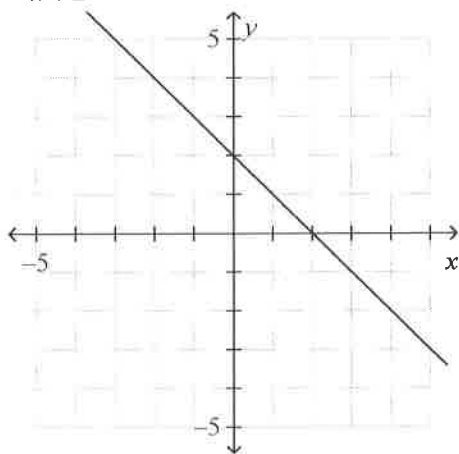
9. $t(x) = 7x$; $t(x) = 49$

- | | |
|-------|---------|
| a. 7 | c. -343 |
| b. -7 | d. 343 |

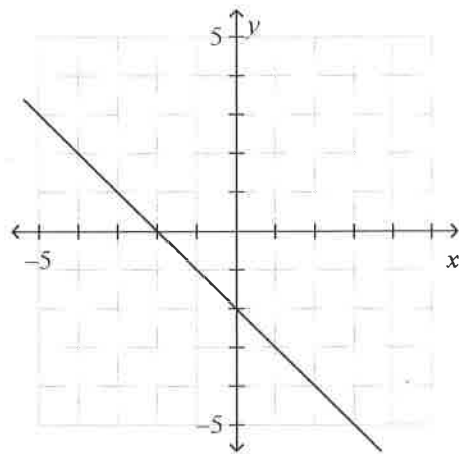
Graph the linear function.

10. $f(x) = x + 2$

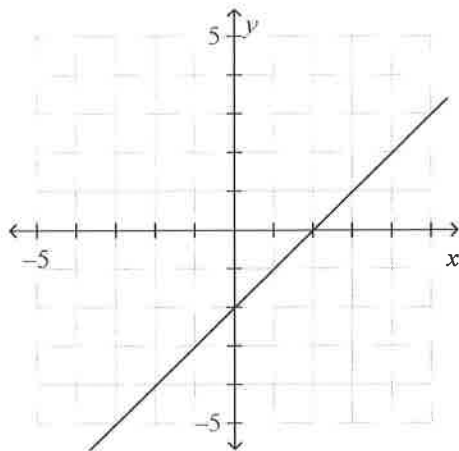
a.



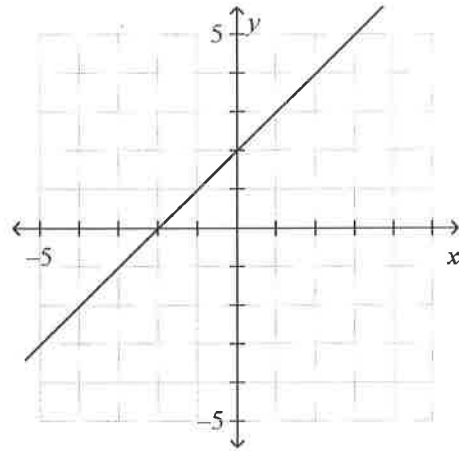
c.



b.

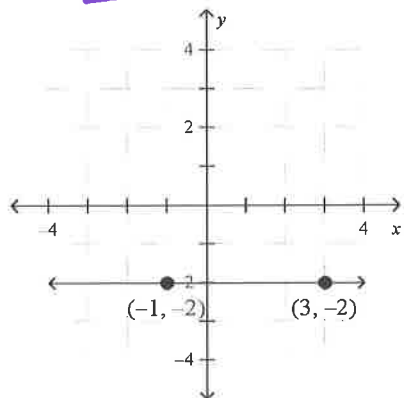


d.



Describe the slope of the line. Then find the slope.

11.



a. positive; 4

b. zero; 0

c. positive; 1

d. negative; -1

12. A-1 Equipment Rental Company charges \$195 per day to rent a backhoe. The rental cost at A-1 can be represented by the function $a(x) = 195x$, where x is the number of days the backhoe is rented. A competitor charges \$150 per day plus an extra \$90 fee. The cost at the competitor can be represented by the function $c(x) = 150x + 90$, where x is the number of days the backhoe is rented. Describe the transformation from the graph of a to the graph of c .

- vertical shrink by $\frac{10}{13}$ and then a vertical translation 90 units down
- vertical stretch by $\frac{10}{13}$ and then a vertical translation 90 units up
- horizontal stretch by $\frac{13}{10}$ and then a vertical translation 90 units up
- vertical shrink by $\frac{10}{13}$ and then a vertical translation 90 units up

Short Answer

Determine whether the relation is a function. Explain.

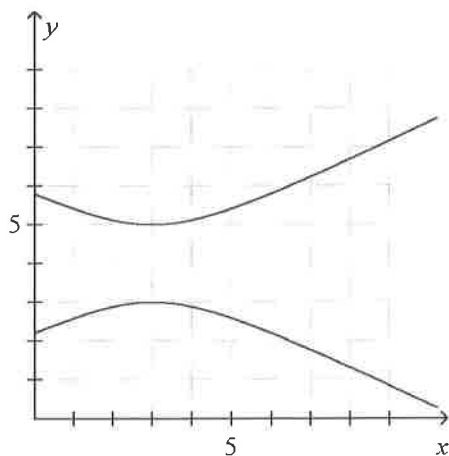
13. $(-2, -8), (-1, -4), (1, 4), (2, 8), (3, 12)$

14.

Input	Output
-3	6
-2	4
-1	2
0	0
1	2

Determine whether the graph represents a function. Explain.

15.



Does the table represent a linear or nonlinear function? Explain.

16.

x	-3	2	7	12
y	-16	4	24	44

Evaluate the function when $x = -3, 0,$ and $1.$

17. $h(x) = 2.5x + 7$

The points represented by the table lie on a line. How can you find the slope of the line from the table? What is the slope of the line?

18.

x	2	4	6	8
y	5	1	-3	-7

Find the slope and y-intercept of the graph of the linear equation.

19. $y = -4x$ $m = \underline{\quad} b = \underline{\quad}$

20. $y - 1 = -\frac{1}{4}x$ $m = \underline{\quad} b = \underline{\quad}$

21. $5x - y = -5$ $m = \underline{\quad} b = \underline{\quad}$

Graph the linear equation. Identify the x-intercept.

22. $y = 4x$

23. $5x + 2y + 5 = 0$

24. A linear function f models the relationship in which the dependent variable decreases 4 units for every 3 units the independent variable increases. Graph f when $f(0) = 4$. Identify the slope, y-intercept, and x-intercept of the graph.

omit 25. Let $f(x) = -3x - 4$. Graph $g(x) = f(x - 5)$. Describe the transformation from the graph of f to the graph of g .

omit 26. Let $f(x) = \frac{4}{5}x + 3$. Graph $h(x) = f(-x)$. Use the graph to describe the transformation from the graph of f to the graph of h .

Omit 27. Let $f(x) = -x + 4$. Graph $g(x) = f\left(\frac{1}{5}x\right)$. Use the graph to describe the transformation from the graph of f to the graph of g .

Omit 28. Let $f(x) = -x + 1$. Graph $g(x) = \frac{1}{3}f(x)$. Use the graph to describe the transformation from the graph of f to the graph of g .

Omit 29. Graph $f(x) = x$ and $g(x) = -\frac{1}{3}x + 2$. Describe the transformations from the graph of f to the graph of g .

Other

30. The function $m = 195 - 43.39t$ represents the amount m (in dollars) of money that you have after buying t tickets.

- Does the situation represent a linear function? Explain.
- Find the domain of the function. Is the domain discrete or continuous?
- Graph the function using its domain.
- Find the range of the function.

31. The function $f(t) = -4t + 440$ represents the amount (in grams) of sand remaining in a plastic sifter after t seconds.

- Find the zero of the function.
- Explain what the zero means in this situation.

32. The table shows the times T (in minutes) to pack b relief boxes for a disaster relief organization.

Number of boxes, b	Time (minutes), T
4	12
6	18
8	24

- Explain why T varies directly with b .
- Write a direct variation equation that relates b and T .

33. The number m of miles a long-distance cyclist travels during today's ride can be modeled by the function $m(t) = 11t + 55$, where t represents the number of hours since a noon rest stop.

- Graph the function and interpret the slope and m -intercept.
- The cyclist can only ride until 6:00 P.M. Identify the domain and range of the function.
- The cyclist will meet up with friends 90 miles from the morning's starting location. Will the cyclist get there today? Explain.

34. You have \$35 to spend at the school carnival. The amount of money m that you have left after riding r rides is given by the function $m = -3r + 35$. How does the graph of m change in each situation?

- The rides are discounted to \$2 each after 8:00 P.M.
- Your friend lost all of her money and you pay for her too.

35. A group spends \$280 for x ski passes and y swim passes at a resort.

Rates	
Ski pass	\$20
Swim pass	\$10

- Write an equation in standard form that represents the situation.
- Graph the equation and interpret the intercepts.
- Find four possible solutions in the context of the problem.