pp. 246-247 #4-7, 10-15, 19-22

4. As each input increases by 1, the output increases by 6.
20; 26; 32

5. As each input increases by 1, the output increases by 5.
12; 17; 22

6. (0, 4), (3, 5), (6, 6), (9, 7)

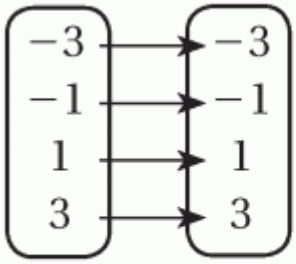
7. (1, 8), (3, 8), (3, 4), (5, 6), (7, 2)

10. yes

11. yes

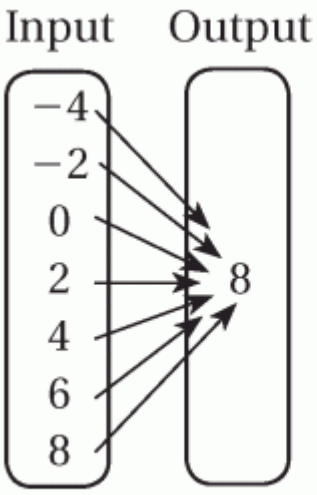
12. In order for a relation to be a function, each input must be paired with exactly one output. So, the relation is not a function.

13. Input Output



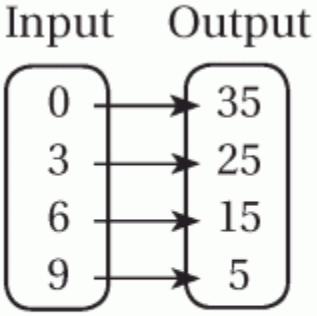
As each input increases by 2, the output increases by 2.

14.



As each input increases by 2, the output is 8.

15.



As each input increases by 3, the output decreases by 10.

19. y-axis

20. x-axis

21. x-axis

22. A

pp. 253-255 #4-5, 8-12, 17-20, 24-25, 33, 39-41

4. $y = 4x$

5. $y = x + 7$

8. $y = x + 11$

9. $y = x - 3$

10. $y = x^3$

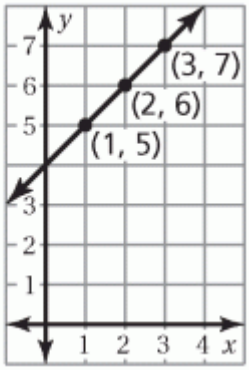
11. $y = 6x$

12. $y = 2x + 1$

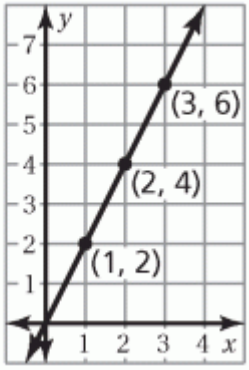
17. 54

18. 3

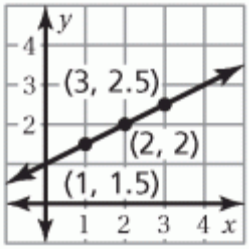
19.



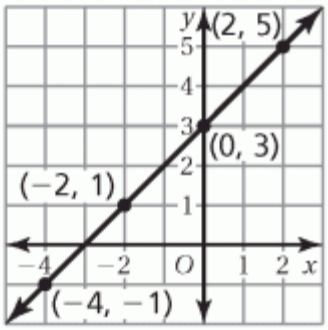
20.



24.



25. The order of the x- and y-coordinates is reversed in each coordinate pair.



33. **a.** $P = 3.50b - 84$

b. independent variable: b; dependent variable: P; The profit depends on the number of bracelets sold.

c. 24 bracelets

39. 1

40. $-\frac{5}{2}$

41. $\frac{1}{3}$

pp. 261-263 #5-11, 13, 20-23

5. $y = \frac{4}{3}x + 2$

6. $y = -4x - 2$

7. $y = 3$

8. $y = 2x$

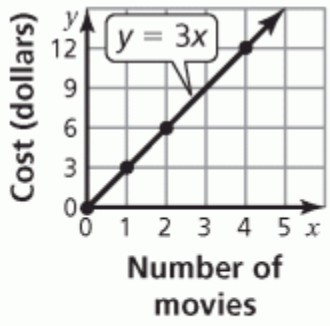
9. $y = -\frac{1}{4}x$

10. $y = \frac{2}{3}x + 5$

11. **a.** independent variable: x; dependent variable: y

b. $y = 3x$; It costs \$3 to rent one movie.

c.



d. \$9

13. **a.** $y = -0.2x + 1$

b. The slope indicates that the power decreases by 20% per hour. The x-intercept indicates that the battery lasts 5 hours. The y-intercept indicates that the battery power is at 100% when you turn on the laptop.

c. 1.25 hours

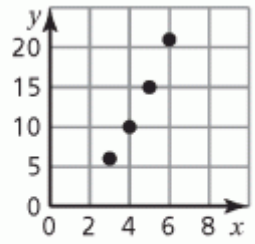
20. $b = -2.6$

21. $w = 1.5$

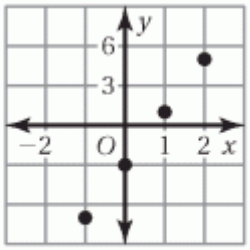
22. $y = 2\frac{7}{20}$

23. C

pp. 270-271 #5-10, 12-13, 16, 19-21

5. 

nonlinear

6. 

linear

7. linear; The graph is a line.

8. nonlinear; The graph is not a line.

9. linear; As x increases by 6, y increases by 4.

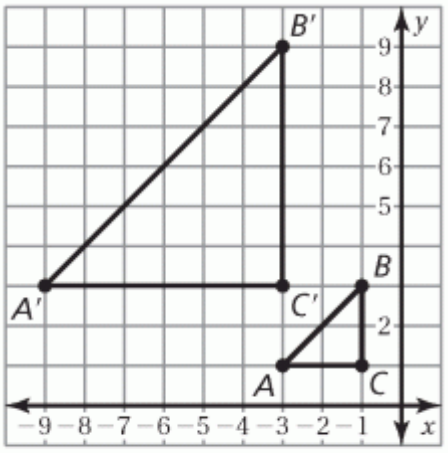
10. nonlinear; As x increases by 2, y changes by different amounts.

12. linear; You can rewrite the equation in slope-intercept form.

13. linear; You can rewrite the equation in slope-intercept form.

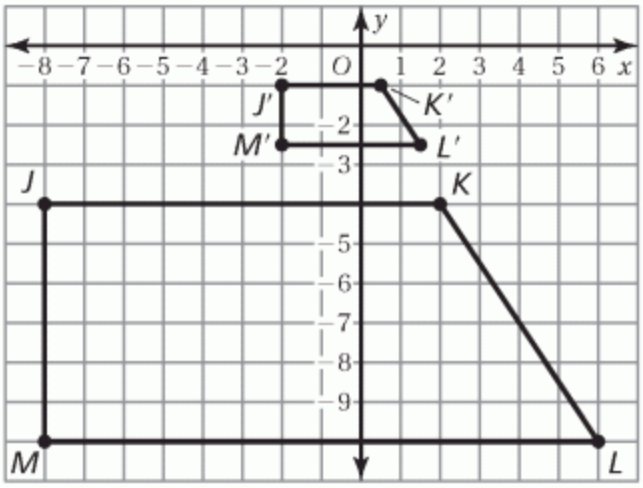
16. See *Taking Math Deeper*.

19.



enlargement

20.



reduction

21. C

pp. 276-277 #7, 11-18, 23

7. The volume of the balloon increases at a constant rate, then stays constant, then increases at a constant rate, then stays constant, and then increases at a constant rate.

11. The hair length increases at a constant rate, then decreases instantly, then increases at a constant rate, then decreases instantly, and then increases at a constant rate.

12. The loan balance remains constant, then decreases instantly, then remains constant, then decreases instantly, and then remains constant.

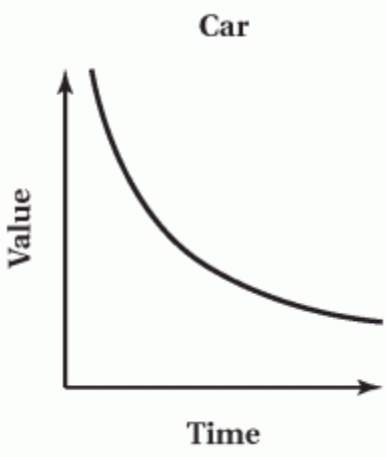
13. **a.** The usage decreases at an increasing rate.

b. The usage decreases at a decreasing rate.

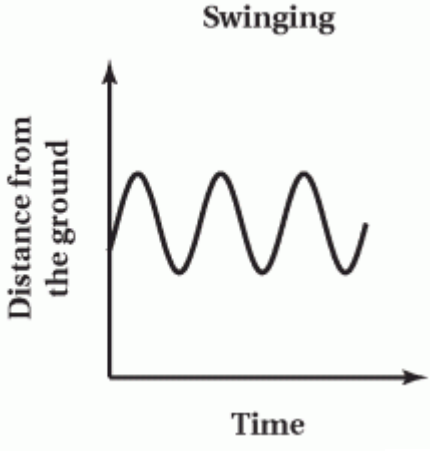
14. **a.** They both improved (increased scores) throughout the season.

b. Mark; Mike

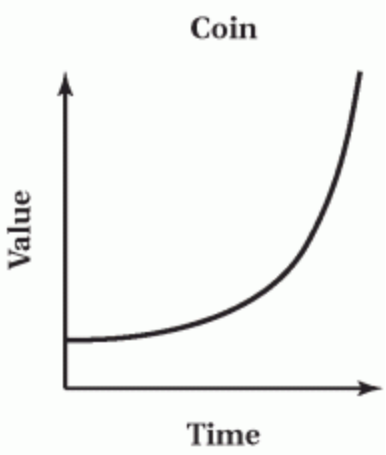
15.



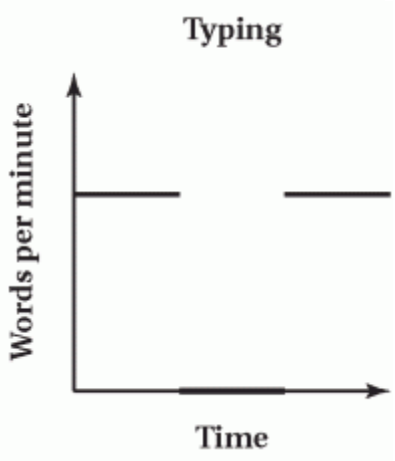
16.


Swinging
Distance from the ground
Time

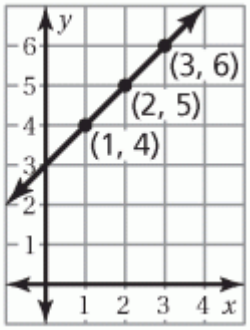
17.

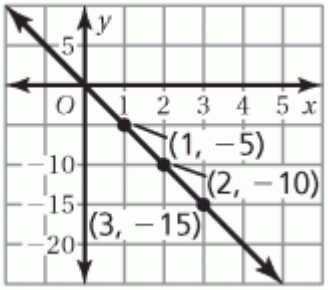

Coin
Value
Time

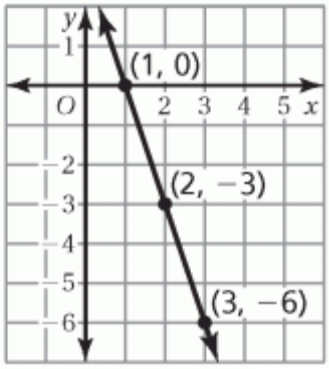
18.


Typing
Words per minute
Time

pp. 279-281 #1-15

1. no
2. yes
3. -11
4. -4
5. 7
6. 

7. 

8. 

9. $y = \frac{1}{3}x + 3$
10. $y = -7$
11. linear; As x increases by 3, y increases by 9.
12. nonlinear; As x increases by 2, y changes by different amounts.

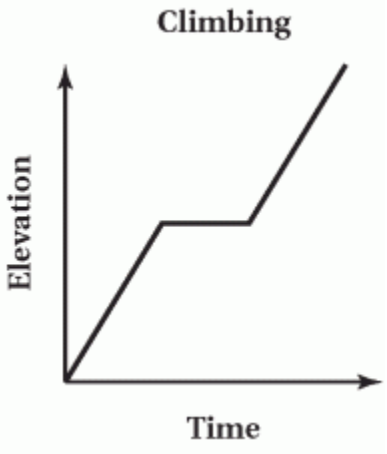
13. a. The sales of Company A increase at a constant rate, then decrease at a constant rate, then increase at a constant rate. The sales of Company B increase then decrease, then increase and decrease again. None of the rates of increase or decrease are constant.

b. Overall, the sales of Company A increased over the time period. The sales of Company B appear to be the same at the beginning and end of the time period.

The sales of Company A increased and decreased at a constant rate over the time period. The sales of Company B did not increase or decrease at a constant rate.

Both graphs are nonlinear. The graph for Company A consists of three linear sections. The graph for Company B has no linear sections.

14.



15.