

Name: _____

Date: _____

Lesson 8.2 Writing Linear Equations

Solve.

1. Diana has z gerbils. Jackie has 4 times as many gerbils as Diana.
 - a) If w stands for the number of gerbils Jackie has, express w in terms of z .

 - b) State the independent and dependent variables in the equation.

2. Mrs. Boyle buys $2g$ pounds of beef. Mrs. Anand buys 1.5 pounds less than Mrs. Boyle.
 - a) If the amount Mrs. Anand buys is d pounds of beef, express d in terms of g .

 - b) State the independent and dependent variables in the equation.

3. Adrien has 4 liters of milk. He drinks y liters each day.
 - a) If Adrien has x liters of milk left after one week, express x in terms of y .

 - b) State the independent and dependent variables in the equation.

4. Raul spent b dollars for lunch. Dolly spent $\frac{1}{3}$ of the amount that Raul spent.
 - a) If c represents the amount Dolly spent, express c in terms of b .

 - b) State the independent and dependent variables in the equation.

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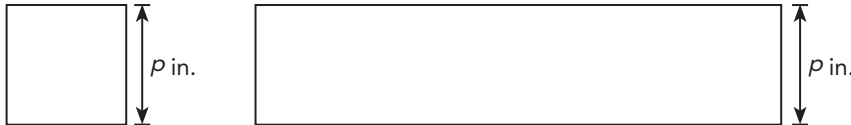
5. Will earns k dollars a month mowing lawns. He spends 20 dollars and saves the rest. The amount he saves is g dollars.

a) Write an equation relating g and k .

b) Complete the table to show the relationship between k and g .

Monthly Earnings (k dollars)	100	120	140	150
Savings (g dollars)				

6. The length of a square is p inches. The width of a rectangle is also p inches. The perimeter of a rectangle is 10 inches more than the perimeter of the square. The rectangle has a perimeter of b inches.



a) Write an equation relating p and b .

b) Complete the table to show the relationship between p and b .

Length of the Square (p inches)	2	4	6	8
Perimeter of the Rectangle (b inches)				

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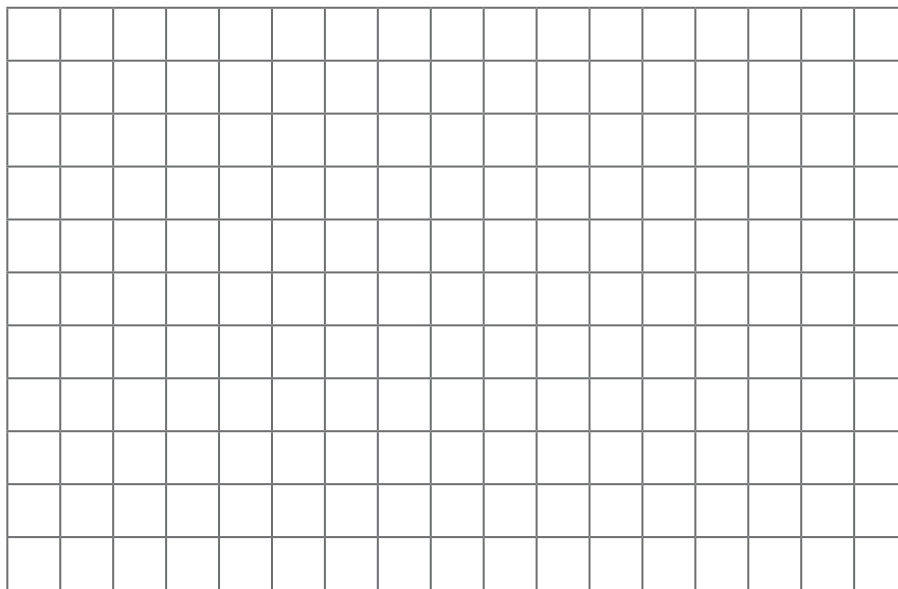
7. It takes Sofia c minutes to cycle from the library to the mall. It takes $\frac{1}{8}$ of the time cycling to travel the same distance walking. Walking takes w minutes.

a) Write an equation relating c and w .

b) Complete the table to show the relationship between c and w .

Cycling (c minutes)	2	3	4	5	6	7
Walking (w minutes)						

c) Graph the relationship between c and w on a coordinate plane.



d) Use the graph to find the time it would take Sofia to walk the distance if she cycles it in 44 minutes.

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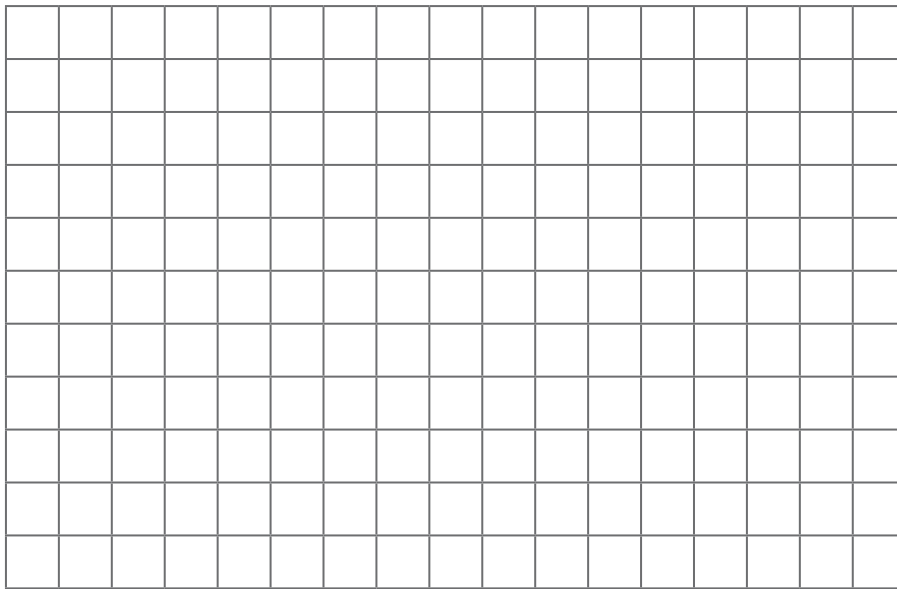
8. Rachel reads p books and Malik reads 3 more books than Rachel. Together they read h books.

a) Write an equation relating p and h .

b) Complete the table to show the relationship between p and h .

Rachel's Books (p)	1	2	3	4	5
Total Number of Books (h)					

c) Graph the relationship between p and h on a coordinate plane.



d) Use the graph to find how many books Rachel reads if the total number of books read is 15.

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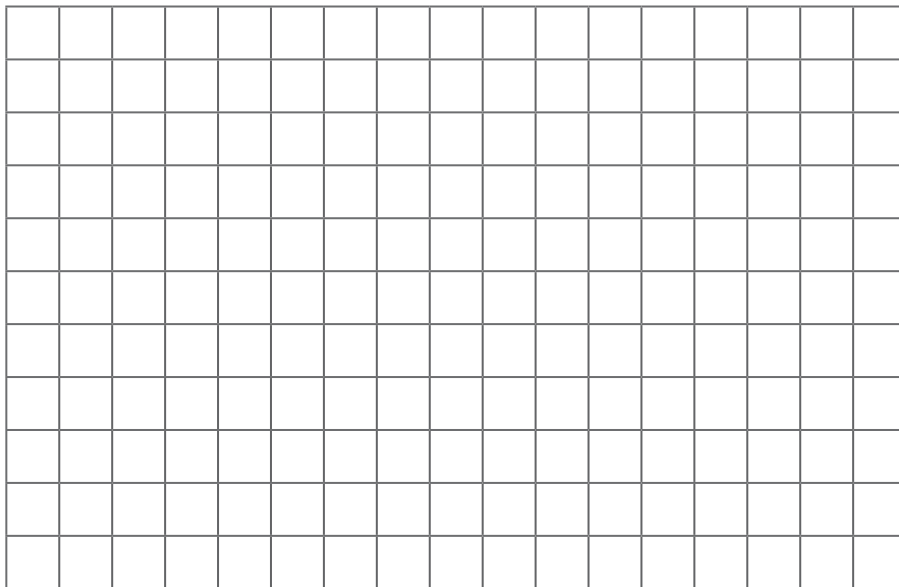
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9. Lynette's mother gives her \$80. Lynette spends \$5 per day. Lynette has y dollars left after x days.
- a) Write an equation relating y and x .

- b) Complete the table to show the relationship between x and y .

Number of Days (x)	1	2	3	4	5	6
Amount of Money Left (y dollars)						

- c) Graph the relationship between x and y on a coordinate plane.



Answers

Chapter 8

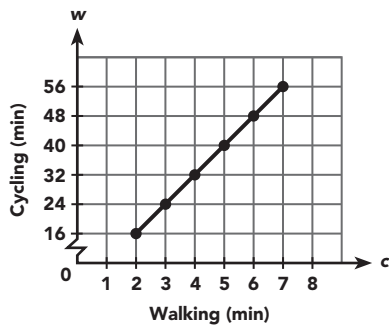
Lesson 8.1

- If $x = 4$, $4 + 8 = 12$.
If $x = 6$, $6 + 8 = 14$.
So, $x = 6$.
- If $y = 10$, $10 + 6 = 16$.
If $y = 14$, $14 + 6 = 20$.
So, $y = 14$.
- If $p = 14$, $14 - 9 = 5$.
If $p = 16$, $16 - 9 = 7$.
So, $p = 16$.
- If $k = 30$, $30 - 15 = 15$.
If $k = 35$, $35 - 15 = 20$.
So, $k = 35$.
- If $w = 12$, $6 \cdot 12 = 72$.
So, $w = 12$.
- If $q = 4$, $15 \cdot 4 = 60$.
So, $q = 4$.
- If $e = 56$, $\frac{1}{8} \cdot 56 = 7$.
So, $e = 56$.
- If $g = 120$, $\frac{1}{10} \cdot 120 = 12$.
So, $g = 120$.
- $a + 14 - 14 = 20 - 14$
 $a = 6$
- $b + 18 - 18 = 34 - 18$
 $b = 16$
- $18 + 12 = s - 12 + 12$
 $s = 30$
- $h - 15 + 15 = 9 + 15$
 $h = 24$
- $7k \div 7 = 84 \div 7$
 $k = 12$
- $\frac{m}{6} \cdot 6 = 16 \cdot 6$
 $m = 96$
- $x + \frac{1}{6} - \frac{1}{6} = \frac{5}{6} - \frac{1}{6}$
 $x = \frac{4}{6} = \frac{2}{3}$
- $y - \frac{2}{5} + \frac{2}{5} = \frac{3}{5} + \frac{2}{5}$
 $y = \frac{5}{5} = 1$
- $8k \div 8 = \frac{4}{9} \div 8$
 $k = \frac{1}{18}$
- $10g \div 10 = \frac{4}{5} \div 10$
 $g = \frac{1}{25}$
- $\frac{3}{5} \cdot \frac{5}{3}p = \frac{1}{10} \cdot \frac{5}{3}$
 $p = \frac{1}{2}$
- $\frac{3}{2} \cdot \frac{2}{3}w = \frac{5}{6} \cdot \frac{3}{2}$
 $w = 1\frac{1}{4}$
- $x + 1.8 - 1.8 = 3.4 - 1.8$
 $x = 1.6$
- $p + 6.3 - 6.3 = 9.1 - 6.3$
 $p = 2.8$
- $y - 3.5 + 3.5 = 2.9 + 3.5$
 $y = 6.4$
- $k - 8.5 + 8.5 = 2.7 + 8.5$
 $k = 11.2$
- $3x + 2.5 - 2.5 = 6.1 - 2.5$
 $3x = 3.6$
 $3x \div 3 = 3.6 \div 3$
 $x = 1.2$
- $4y - 6.2 + 6.2 = 13 + 6.2$
 $4y = 19.2$
 $4y \div 4 = 19.2 \div 4$
 $y = 4.8$
- $k = 40 \div 3.2$
 $k = 12.5$
- $p = 36 \div 2.4$
 $p = 15$
- $w + \frac{2}{3} - \frac{2}{3} = 2\frac{5}{6} - \frac{2}{3}$
 $w = 2\frac{1}{6}$
- $d - \frac{2}{5} + \frac{2}{5} = 1\frac{3}{10} + \frac{2}{5}$
 $d = 1\frac{7}{10}$
- $\frac{3y}{4} \cdot 4 = 15 \cdot 4$
 $3y = 60$
 $y = 20$
- $\frac{7}{3} \cdot \frac{3}{7}k = \frac{7}{3} \cdot 6$
 $k = 14$
- One possible solution:
If $a = 3$, $b = 2$, $c = 20$, then the equation is
 $3x + 2 = 20$
 $3x + 2 - 2 = 20 - 2$
 $3x = 18$
 $x = 6$

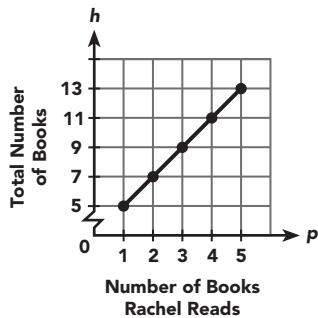
Lesson 8.2

- a) $w = 4z$
b) Independent variable: z ;
dependent variable: w
- a) $d = 2g - 1.5$
b) Independent variable: g ;
dependent variable: d

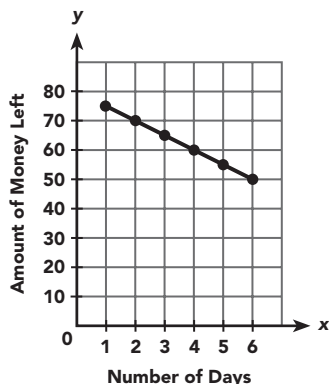
3. a) $x = 4 - 7y$
 b) Independent variable: y ;
 dependent variable: x
4. a) $c = \frac{b}{3}$
 b) Independent variable: b ;
 dependent variable: c
5. a) $g = k - 20$
 b) 80; 100; 120; 130
6. a) $b = 4p + 10$
 b) 18; 26; 34; 42
7. a) $w = 8c$ or $c = \frac{w}{8}$
 b) 16; 24; 32; 40; 48; 56
 c)



- d) $5\frac{1}{2}$ minutes
8. a) $h = 2p + 3$
 b) 5; 7; 9; 11; 13
 c)

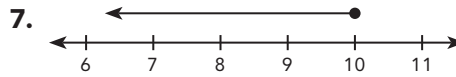
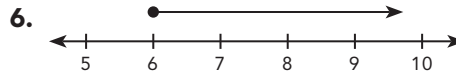
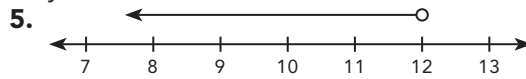


- d) Rachel reads 6 books.
9. a) $y = 80 - 5x$
 b) 75; 70; 65; 60; 55; 50
 c)

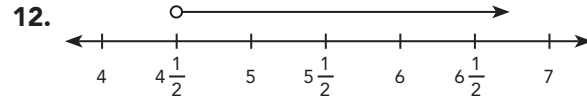


Lesson 8.3

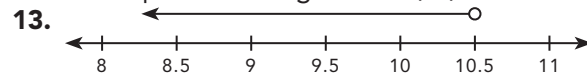
1. $g \leq 55$
 2. $q \geq 28$
 3. $p > 15$
 4. $y < 20$



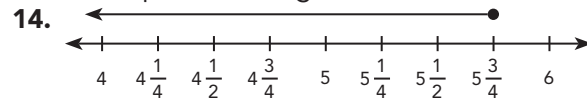
8. $a > 14$
 9. $a \geq 11$
 10. $a < 14$
 11. $a \leq 15$



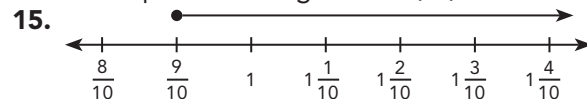
Three possible integers are 5, 6, and 7.



Three possible integers are 8, 9, and 10.

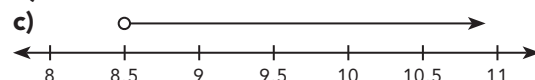


Three possible integers are 3, 4, and 5.



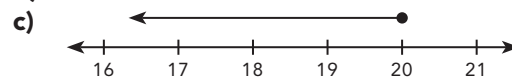
Three possible integers are 1, 2, and 3.

16. a) $x > 8.5$
 b) No. x is less than 8.5.



The least possible distance is 9 miles.

17. a) $y \leq 20$
 b) Yes. 18 is less than 20.



The maximum value of y is 20.

