

Algebra

standard
exponential
inequality
formula
binomial
expression
operations
equation
slope
linear
variable
rationals
y-intercept
quadratic
binomial

SLPS Continuous Learning
Algebra 150

Algebra 150 Continuous Learning Plan

Date	Topic	Practice
April 6, 2020	Solving Linear Equations	Students should watch the video(s) and complete practice questions <ul style="list-style-type: none"> • Video 1 • Video 2 • Video 3 • Video 4 • Summary • Practice
April 7, 2020	Solving Linear Equations with Variables on both sides	Students should watch the video(s) and complete practice questions <ul style="list-style-type: none"> • Video 1 • Video 2 • Summary • Practice
April 8, 2020	Literal Equations and Formulas	Students should watch the video(s) and complete practice questions <ul style="list-style-type: none"> • Video • Summary • Practice
April 9, 2020	Solving Inequalities in One Variable	Students should watch the video(s) and complete practice questions <ul style="list-style-type: none"> • Video 1 • Video 2 • Summary • Practice
April 10, 2020	Compound Inequalities	Students should watch the video(s) and complete practice questions <ul style="list-style-type: none"> • Video 1 • Video 2 • Summary • Practice
April 13, 2020	Linear Equations – Slope intercept Form	Students should watch the video(s) and complete practice questions <ul style="list-style-type: none"> • Video • Summary • Practice
April 14, 2020	Linear Equations – Point Slope Form	Students should complete practice questions <ul style="list-style-type: none"> • Video 1 • Video 2 • Summary

		<ul style="list-style-type: none"> • Practice
April 15, 2020	Linear Equations – Standard Form	<p>Students should complete practice questions</p> <ul style="list-style-type: none"> • Video 1 • Video 2 • Summary • Practice
April 16, 2020	Linear Equations – Parallel Perpendicular Form	<p>Students should complete practice questions</p> <ul style="list-style-type: none"> • Video 1 • Video 2 • Summary • Practice
April 17, 2020	All Linear Equations Practice	<p>Students should complete practice questions</p> <ul style="list-style-type: none"> • Review 1 • Review 2
April 20, 2020	Relations and Functions	<p>Students should watch the video(s) and complete practice questions</p> <ul style="list-style-type: none"> • Video 1 • Summary • Practice
April 21, 2020	Linear Functions	<p>Students should watch the video(s) and complete practice questions</p> <ul style="list-style-type: none"> • Video • Summary • Practice
April 22, 2020	Transforming Linear Functions	<p>Students should watch the video(s) and complete practice questions</p> <ul style="list-style-type: none"> • Video 1 • Video 2 • Summary • Practice
April 23, 2020	Scatter Plots and Lines of Fit	<p>Students should watch the video(s) and complete practice questions</p> <ul style="list-style-type: none"> • Video • Video 2 • Summary • Practice
April 24, 2020	Analyzing Lines of Fit	<p>Students should watch the video(s) and complete practice questions</p> <ul style="list-style-type: none"> • Video • Summary • Practice

Students are encouraged to maintain contact with their home school and classroom teacher(s). If you have not already done so, please visit your child's school website to access individual teacher web pages for specific learning/assignment information. If you cannot reach your teacher and have elected to use these resources, please be mindful that some learning activities may require students to reply online, while others may require students to respond using paper and pencil. In the event online access is not available, please record responses on paper. Completed work should be dropped off at your child's school. Please contact your child's school for the dates and times to drop off your child's work.

If you need additional resources to support virtual learning, please visit: <https://www.slps.org/extendedresources>



1-2 Additional Practice

Solving Linear Equations

Solve each equation.

1. $4m - 5 = 11$

2. $-3d + 10 = 43$

3. $\frac{2(r-3)}{4} - 8 = 50$

4. $5h - 13 = 12$

5. $-8 = 3y - 2$

6. $8(n + 2) = 24$

7. $-\frac{2}{3}y - \frac{3}{4} = 5$

8. $\frac{p}{4} + 6 = 8$

9. $-3 = -3(2t - 1)$

10. $x - 2(x + 10) = 12$

11. $-15 = 5(3q - 10) - 5q$

12. $-5(x - 3) = -25$

For Items 13–16, write and solve a linear equation to match each situation.

13. The sum of three consecutive integers is 78. What are the three integers?
14. Darren wins a coupon for \$4 off the lunch special for each of 5 days. He pays \$75 for his 5 lunch specials. Write and solve an equation to find the original price p for one lunch special.
15. Olivia ate at the same restaurant four times. Each visit she ordered a salad and left a \$1.50 tip. She spent a total of \$54. Find the cost c of each salad.
16. Casey buys sandwiches and bags of chips. Each sandwich costs three times as much as a bag of chips. She bought 5 sandwiches for \$6 each and spent \$42. How many bags b did she buy?
17. Renaldo catches the bus at 4:00 P.M. to ride 3.2 miles from his house to the dentist's office. He arrives at 4:30 P.M., for a one-hour appointment. Then he will ride a bus traveling at the same rate of speed for 4.8 miles to the soccer field. Will he be on time for his 6:30 P.M. soccer practice? Explain.
18. What property was used on $14k + 2(3k + 5) - 5 = 10$ to obtain $14k + 6k + 10 - 5 = 10$?



1-3 Additional Practice

Solving Equations with a Variable on Both Sides

Identify if no, one, or infinitely many solutions exist for each equation. If a solution exists, determine the value.

1. $4y - 7 + 2y = -3(y - 1) - 1$

2. $-(5a + 6) = 2(3a + 8)$

3. $-8x - (3x + 6) = 4 - x$

4. $14 + 3n = 8n - 3(n - 4)$

5. $6.8 - 4.2b = 5.6b - 3$

6. $\frac{1}{3} + \frac{2}{3}m = \frac{2}{3}m - \frac{2}{3}$

7. $\frac{1}{3}(t + 6) - 10 = -3t + 2$

8. $\frac{1}{2}r + 6 = 3 - 2r$

9. $0.5t + 0.25(t + 16) = 4 + 0.75t$

10. $2.5(2z + 5) = 5(z + 2.5)$

11. $-6(-p + 8) = -6p + 12$

12. $\frac{3}{8}f + \frac{1}{2} = 6\left(\frac{1}{16}f - 3\right)$

Solve each problem.

13. A square and a rectangle have the same perimeters. The length of a side of the square is $4x - 1$. The length of the rectangle is $2x + 2$ and the width is $2x$. Write and solve an equation to find x .
14. A movie club charges a one-time membership fee of \$25. This allows members to purchase movies for \$7 each. Another club does not charge a membership fee and sells movies for \$12 each. How many movies must a member purchase for the total cost of the two clubs to be equal?
15. How many pounds of cashews that cost \$14 per pound must be mixed with 5 pounds of peanuts that cost \$6.50 per pound to make mixed nuts that cost \$10.25 per pound?



1-4 Additional Practice

Literal Equations and Formulas

Rewrite each equation to solve for m .

1. $m + 3n = 7$

2. $3m - 9n = 24; n = -1, 1, 3$

3. $-5n = 4m + 8$

4. $2m = -6n - 5; n = 1, 2, 3$

5. $8n = -3m + 1$

6. $4n - 6m = -2; n = -2, 0, 2$

7. $-5n = 13 - 3m$

8. $10m + 6n = 12; n = -2, -1, 0$

Rewrite each equation to solve for x .

9. $fx - gx = h$

10. $qx + x = r$

11. $m = \frac{x+n}{p}$

12. $d = f + fx$

13. $-3(x+n) = x$

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

Solve each problem. Round decimals to the nearest tenth.

15. What is the width of a rectangle with length 14 cm and area 161 cm²?

16. The weather report gives the temperature as 35 degrees Celsius. Find the equivalent temperature in degrees Fahrenheit. $C^\circ = (F^\circ - 32) \times \frac{5}{9}$

17. A rectangle has perimeter 182 in. and length 52 in. What is the width?

18. A triangle has base 7 m and area 17.5 m². What is the height?



1-5 Additional Practice

Solving Inequalities in One Variable

Solve each inequality. Then graph the solution.

1. $-6t - 3 < -2t - 19$

2. $-3(m - 4) < 6$

3. $4(1 - x) < 16$

4. $2y \leq -3$

5. $3(v - 4) \geq 5v - 24$

6. $-x - 1 > 3x + 1$

Solve each inequality.

7. $2(k + 4) - 3k \leq 14$

8. $3(4c - 5) - 2c > 0$

9. $15(j - 3) + 3j < 45$

10. $22 \geq 5(2y + 3) - 3y$

11. $-53 > -3(3z + 3) + 3z$

12. $20(d - 4) + 4d \leq 8$

13. $-2(6 + s) < -16 + 2s$

14. $9 - 2x < 7 + 2(x - 3)$

Solve each inequality.

If all real-number values of x are solutions of the inequality, write TRUE.

If no real-number values of x are solutions of the inequality, write FALSE.

15. $2(n - 3) \leq -13 + 2n$

16. $-3(w + 3) < 9 - 3w$

17. The unit cost for a piece of fabric is \$4.99 per yard including tax. You have \$30 to spend on material. How many whole feet of material could you buy?



1-6 Additional Practice

Compound Inequalities

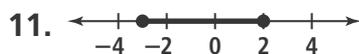
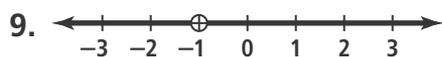
Write a compound inequality that represents each phrase. Graph the solution.

- all real numbers that are less than -3 or greater than or equal to 5
- The time a cake must bake is between 25 minutes and 30 minutes, inclusive.

Solve each compound inequality. Graph your solution.

- $5 < k - 2 < 11$
- $-4 > y + 2 > -10$
- $6b - 1 \leq 41$ or $2b + 1 \geq 11$
- $5 - m < 4$ or $7m > 35$
- $3 < 2p - 3 \leq 12$
- $3 > \frac{11+k}{4} \geq -3$

Write a compound inequality that each graph could represent.



- A family is comparing different car seats. One car seat is designed for a child up to and including 30 lb. Another car seat is designed for a child between 15 lb and 40 lb. A third car seat is designed for a child between 30 lb and 85 lb, inclusive. Model those ranges with compound inequalities. Which car seats are appropriate for a 32 -lb child?

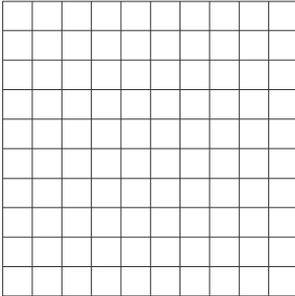


2-1 Additional Practice

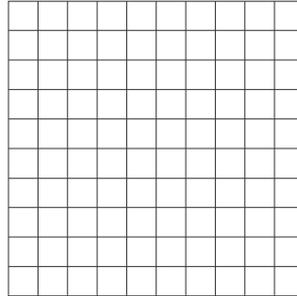
Slope-Intercept Form

Graph the line that represents each linear equation.

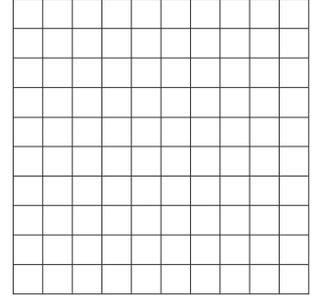
1. $y = x + 3$



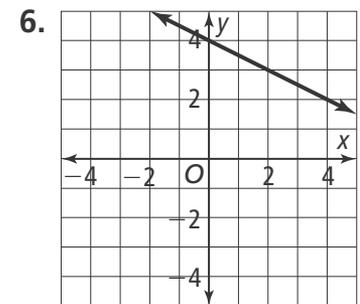
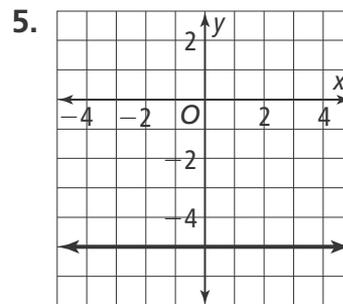
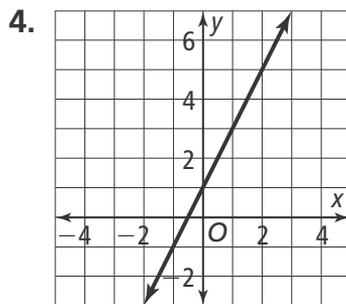
2. $y = -5x + 1$



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



What slope-intercept form equation represents the line?



Write the equation in slope-intercept form of the line that passes through the given points.

7. $(-1, 3)$ and $(-3, 1)$

8. $(-4, 8)$ and $(4, 6)$

9. $(9, 2)$ and $(-3, -2)$

10. Zachary purchased a computer for \$1,800 on a payment plan. Three months after he purchased the computer, his balance was \$1,350. Five months after he purchased the computer, his balance was \$1,050. What is an equation that models the balance B after m months?

11. What does the slope signify in this equation and why?

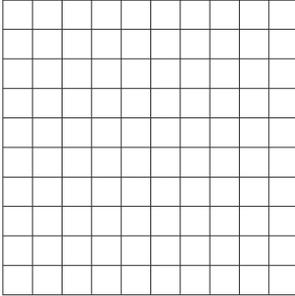


2-2 Additional Practice

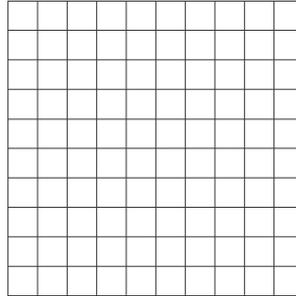
Point-Slope Form

Graph the line that represents each linear equation.

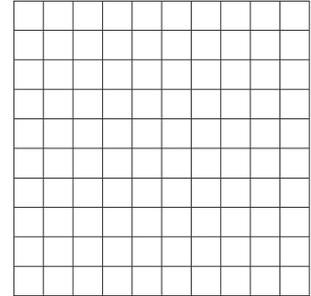
1. $y - 2 = 2(x + 3)$



2. $y + 3 = -2(x + 1)$



3. $y + 1 = -\frac{3}{5}(x + 5)$



Write the equation in point-slope form of the line that passes through the given point with the given slope.

4. $(2, 1); m = 3$

5. $(-3, -5); m = -2$

6. $(4, -11); m = \frac{3}{4}$

Write an equation in point-slope form of the line that passes through the given points.

7. $(4, 0)$ and $(-2, 1)$

8. $(-3, -2)$ and $(5, 3)$

9. $(-5, 1)$ and $(3, 4)$

10. Explain why it does not matter which point you choose when writing the equation of the line in point-slope form, given two points.

11. Members of the student council are conducting a fundraiser by selling school calendars. After selling 80 calendars, they had a loss of \$360. After selling 200 calendars, they had a profit of \$600. Write an equation that describes the relation between y , the profit or loss, and x , the number of calendars sold. How much profit did they make from selling each calendar? How much would they have lost if they had sold no calendars?

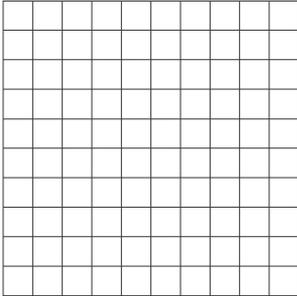


2-3 Additional Practice

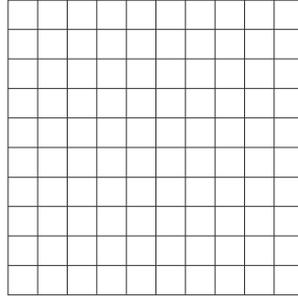
Standard Form

Graph the line that represents each linear equation.

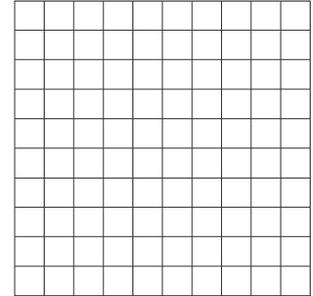
1. $-5x + y = -10$



2. $-3x - 6y = 12$

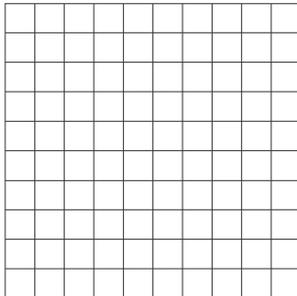


3. $4x - 12y = -24$

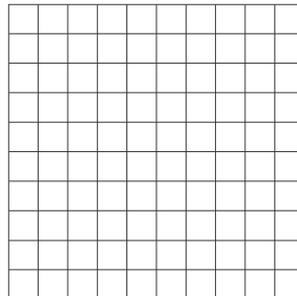


Graph the line that represents each linear equation.

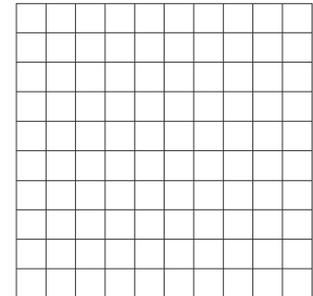
4. $5x = 15$



5. $-4y = -20$



6. $6x = -24$



What points represent the x - and y -intercepts of each equation?

7. $4x - 5y = 80$

8. $7x + 8y = 112$

9. $-8x + 12y = -144$

10. Find expressions for the slope and x - and y -intercepts for

$Ax + By = C$, where A , B , and C are nonzero integers.

11. A high school football team scores a total of 42 points by scoring touchdowns and field goals. Suppose each field goal is worth 3 points and each touchdown is worth 7 points.

a. Let x represent the number of field goals and y represent the number of touchdowns. Write an equation that models the total points scored in the game.

b. Identify and interpret the x - and y -intercepts.



2-4 Additional Practice

Parallel and Perpendicular Lines

Write an equation for the line that passes through the given point and is parallel to the graph of the given equation.

1. $y = 3x - 2$; (3, 2) 2. $y = \frac{2}{3}x + 19$; (-9, 4) 3. $3x + 4y = 12$; (-4, 7)

Write an equation for the line that passes through the given point and is perpendicular to the graph of the given equation.

4. $y = -2x - 1$; (2, -1) 5. $y + 4 = -\frac{2}{3}(x - 2)$; (4, -2) 6. $x - 6y = -2$; (-5, 6)

Determine whether the graphs of the given equations are *parallel*, *perpendicular*, or *neither*.

7. $y = 4x + 5$
 $2x + 8y = 16$ 8. $y = 3x + 5$
 $-3x - y = 9$ 9. $y - 7x = 3$
 $14x - 2y = 28$

10. If you are given the graph of a line and are asked to write the equation of a perpendicular line, does it matter what the y -intercept will be for the equation you write? Why or why not?
11. A right triangle is formed by the y -axis, the line $y = 2x + 4$, and another line. If the legs of the right triangle intersect at (2, 8), what is the equation of the other line of the triangle?



Common Core Standards Practice Week 5

Selected Response

1. Which equation represents the data in the table?

Number of Hours Worked, h	Number of Paint Cans Remaining, p
0	12
1	10
2	8
3	6

- Ⓐ $p = 12h - 2$
- Ⓑ $p = 2h - 12$
- Ⓒ $p = 12 - 2h$
- Ⓓ $p = 2 - 12h$
2. Which is an equation of a line in point-slope form that has slope 9 and passes through $(-3, 6)$?
- Ⓐ $y - 6 = 9(x + 3)$
- Ⓑ $y - 6 = 9(x - 3)$
- Ⓒ $y + 3 = 9(x - 6)$
- Ⓓ $y - 6 = -3(x - 9)$

Constructed Response

3. Sage earns \$6 per hour doing chores.

- a. Make a table and write an equation to show the relationship between the number of hours worked h and the wages earned w .

Hours	Wages

- b. How many hours will Sage need to work to earn \$30?

Extended Response

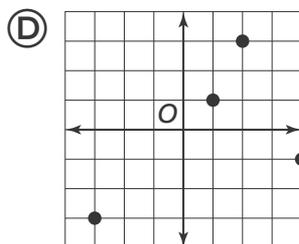
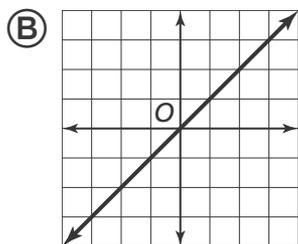
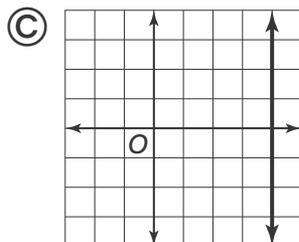
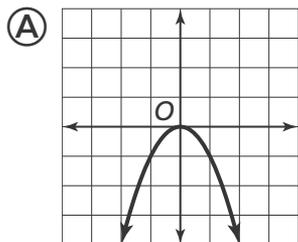
4. A department store advertises a sale where the customer chooses the discount. A customer may choose a flat discount of \$20 off any purchase or 20% off the total purchase price. The final purchase price of an item was \$175.
- a. What are the possible prices of the item before each discount?
- b. Which discount represents a bigger savings in cost for the customer?



Common Core Standards Practice Week 6

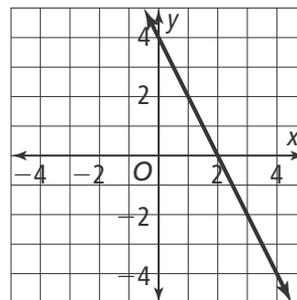
Selected Response

1. Which of the following is NOT a function?



Constructed Response

2. a. Draw a line on the graph below that has the same slope as the line drawn and that passes through $(-2, 1)$.



b. What is an equation of the line you drew?

Extended Response

3. Refer to the graph at the right. Write each equation in the correct column.

• $y - 2 = \frac{1}{2}(x - 4)$

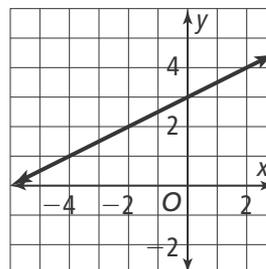
• $y - 4 = \frac{1}{2}(x - 2)$

• $y - 1 = \frac{1}{2}(x + 4)$

• $y + 4 = 2(x - 1)$

• $y - 1 = 2(x + 4)$

Possible Equation of the Line Drawn	NOT an Equation of the Line Drawn





3-1 Additional Practice

Relations and Functions

What is the domain and range of each function?

1.

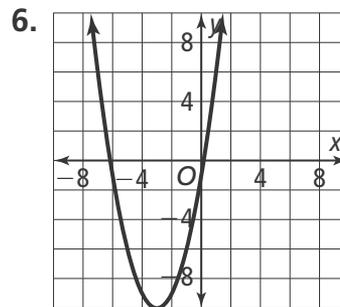
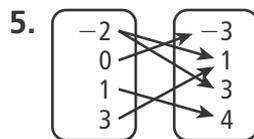
x	3	5	7	8	11
y	6	7	7	9	14

2.

x	-3	-1	2	5	7
y	9	5	4	-5	-7

Is each relation a function? If so, state whether it is one-to-one or many-to-one.

3. $\{(-4, 7), (-3, 5), (1, 4), (3, -8), (5, -11)\}$ 4. $\{(-4, 8), (-2, 4), (0, 1), (2, 4), (4, 8)\}$



7. Explain how the vertical line test proves that a relation is not a function.

8. Fiona buys different amounts of gas at \$2.25. She has a graph which shows the different amounts she should pay. What constraints are there on the domain of the function?



3-2 Additional Practice

Linear Functions

What is the value of $f(-3)$ for each function?

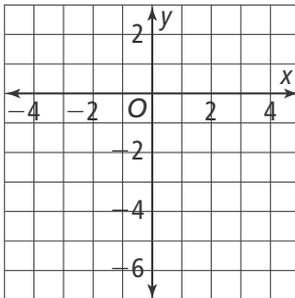
1. $f(x) = 4x - 9$

2. $f(x) = -\frac{1}{3}x + 13$

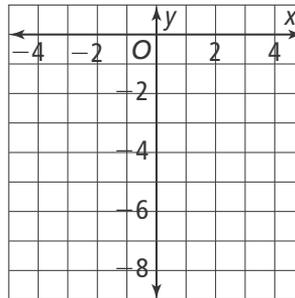
3. $f(x) = -2x - 11$

Draw the graph of each linear function.

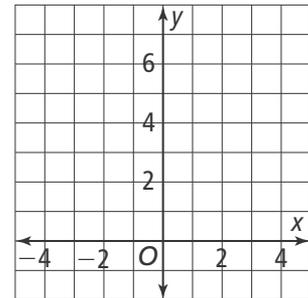
4. $f(x) = 3x - 6$



5. $f(x) = -2(x + 4)$



6. $f(x) = \frac{1}{2}x + 5$



Use the data in each table to write a linear function using function notation.

7.

x	y
-3	-0.6
1	0.2
7	1.4

8.

x	y
-5	-10
-2	-1
4	17

9.

x	y
-5	8
-2	2
8	-18

10. A function, $f(x) = 4x + 5$, has a domain $0 \leq x \leq 50$. What is its range?

11. For a basic subscription, a cable television provider charges an activation fee of \$60, plus \$125 per month. What linear function represents the total cost of a basic cable subscription for t months? What is the total cost for two years of service?



3-3 Additional Practice

Transforming Linear Functions

Suppose $f(x) = 3x + 5$. Describe how the graph of each function compares to f .

1. $g(x) = f(x) + 12$

2. $h(x) = f(x) - 7$

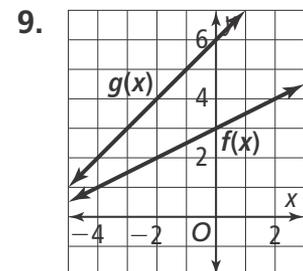
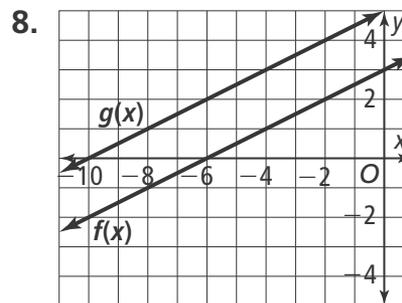
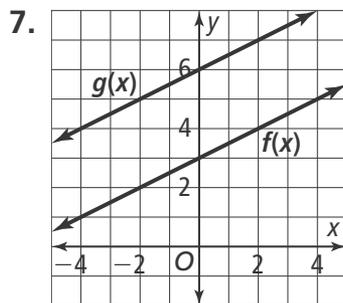
3. $g(x) = f(x + 8)$

4. $h(x) = f(x - 14)$

5. $g(x) = 4f(x)$

6. $g(x) = f(5x)$

What value of k transforms the graph of $f(x) = 0.5x + 3$ into graph g ? Describe the transformation.



10. When $-1 < k < 1$, describe the effect of k on $f(kx)$ and $kf(x)$.

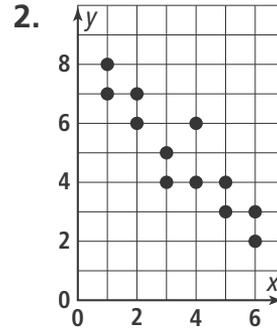
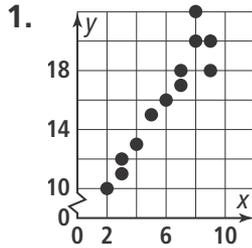
11. An athletic club has an application fee of \$25 and a monthly membership fee of \$15. The function f models the total cost of a membership for x months. The function g represents the cost of the membership if the application fee is waived. Write each function and compare the slopes and y -intercepts of the functions.



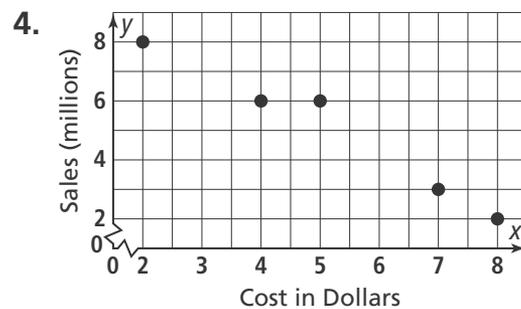
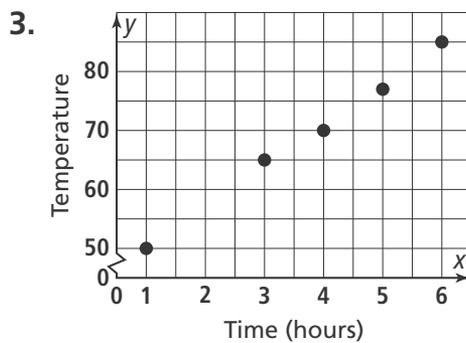
3-5 Additional Practice

Scatter Plots and Lines of Fit

What is the association between the x - and y -values for each graph?



Describe the type of correlation each scatter plot shows. Draw a trend line that models each data set and find the equation of that trend line.



- For the trend line in Item 3, what would the expected temperature be after 2 hours? Explain what this means in the context of the data.
- For the trend line in Item 4, what would the expected sales be if the cost was set at \$6.50? Explain what this means in the context of the data.
- Would you expect the trend line for the temperature to continue in the same direction indefinitely? Explain.



3-6 Additional Practice

Analyzing Lines of Best Fit

Describe the type of correlation indicated by each correlation coefficient.

1. $r = 0.875$

2. $r = -0.976$

3. $r = 0.043$

For each situation described given a linear model, is there a correlation? If so, is there a causal correlation? Explain.

- the number of minutes studied for a test and the final test grade
- the attendance at a baseball game and number of runs the home team scores in the game

Use the table for Items 6 and 7.

Years Since 2002	0	1	3	5	6	7	9	10	12	13
Gross Revenue (Millions)	900	1,900	3,200	4,500	5,150	6,750	7,550	8,100	9,525	10,300

- What is the equation of the line of best fit for the above data? Round the slope and y -intercept to the nearest hundredth. Interpret the slope and y -intercept.
- Use the line of best fit to determine the predicted gross revenue for 2010 and 2018.
- Explain why a pattern in a residual plot can suggest that a linear model may not be a good fit for a set of data.