About the Test Prep and Practice Workbook

Extra Practice

The Extra Practice exercises provide additional practice on the key concepts taught in each section.

Test Prep

Each Chapter contains a test to prepare students for standardized test questions, including multiple choice, multi-select, matching, and short answer.

Test Prep: Quarter

Use the Quarter Tests to measure your cumulative understanding of standards throughout the course. There are three tests, one to take after each of the first three quarters.

Test Prep: End of Course

The End of Course Test measures students' understanding of all content in this course. The assessment is designed to prepare students for standardized test questions, including multiple choice, multi-select, matching, and short answer.

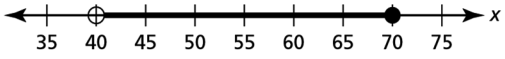
Name _____ Date _____

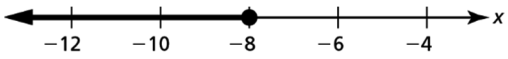
1.1 Extra Practice

In Exercises 1–6, write the interval in interval notation.

1. $4 < x < 10$

2. $-36 \leq x \leq -4$

3. 

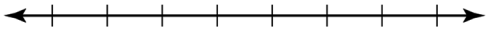
4. 

5. the real numbers from 16 through 25

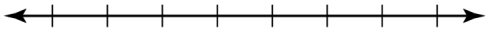
6. the real numbers between -3 and -1

In Exercises 7 and 8, sketch the graph of the set of numbers.

7. $\{x \mid x \leq -6 \text{ or } x \geq 0\}$



8. $\{x \mid x \neq 18\}$



In Exercises 9–12, write the set of numbers in set-builder notation.

9. $(-16, 45]$

10. $(-\infty, -2] \text{ or } [5, \infty)$

11. the set of all real number less than 13

12. the set of all integers except -18

13. The elevation relative to sea level in Louisiana ranges from -8 feet in New Orleans to 535 feet on Driskill Mountain. Write the range of elevations in interval notation and in set-builder notation.

Name _____ Date _____

1.2 Extra Practice

In Exercises 1 and 2, determine whether the relation is a function. Explain.

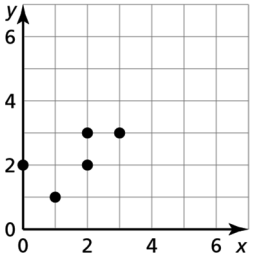
1.

Input, *x*	−2	0	1	−2
Output, *y*	4	5	4	5

2. $(0, 3), (1, 1), (2, 1), (3, 0)$

In Exercises 3 and 4, determine whether the graph represents a function. Explain.

3.



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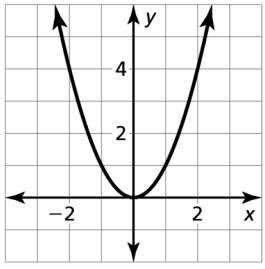
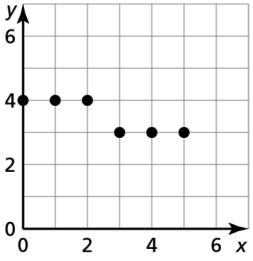


In Exercises 5 and 6, find the domain and range of the function represented by the graph.

5.



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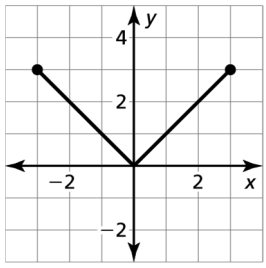

7. A computer printer can print 12 pages of text each minute.

a. Does the situation represent a function? If so, identify the independent and dependent variables.

b. You have no more than 50 pieces of paper. Find the domain and range.

8. Determine whether the statement uses the word *function* in a way that is mathematically correct. Explain your reasoning.

A function pairs each animal shelter employee with six animals.

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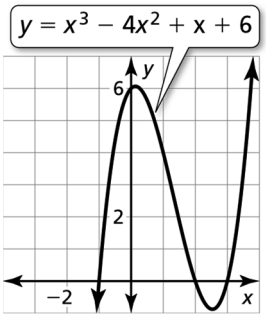
1.3 Extra Practice

In Exercises 1 and 2, estimate the intercepts of the graph of the function.

1.



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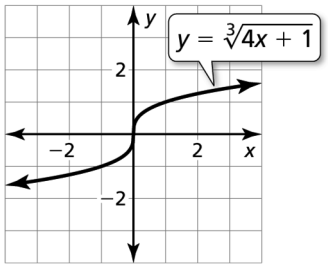
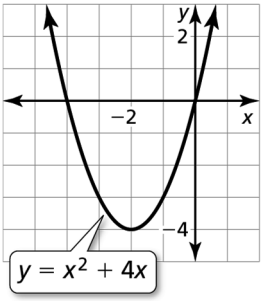


In Exercises 3 and 4, approximate when the function is positive, negative, increasing, or decreasing. Then describe the end behavior of the function.

3.



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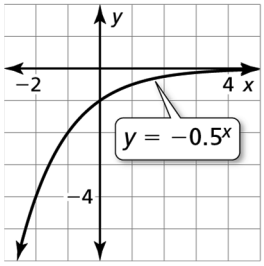
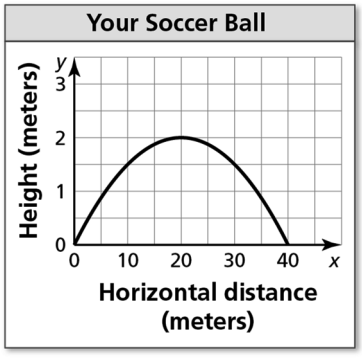


5. Sketch a graph of a function with the given characteristics.

- The function is increasing when $x > -1$ and decreasing when $x < -1$.
- The function is positive when $x < -3$, negative when $-3 < x < 1$, and positive when $x > 1$.

6. The graph shows the path of a soccer ball you kick. Your friend's soccer ball reaches a maximum height of 4 feet after traveling a horizontal distance of 82 feet and lands 164 feet from where she kicked. Compare the path of your ball to the path of your friend's ball.

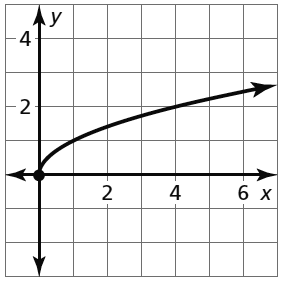


Name _____ Date _____

1.4 Extra Practice

In Exercises 1–6, determine whether the graph, the table, or the equation represents a *linear* or *nonlinear* function. Explain.

1.



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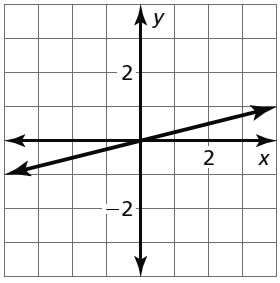

3.

x	1	2	3	4
y	−1	2	5	8

4.

x	−1	0	1	2
y	0	−1	0	3

5. $y = 3 - 2x$

6. $y = -\frac{3}{4}x^3$

7. The linear function $a = 150 - 20t$ represents the amount a (in dollars) of money that an art club has left after buying t tickets to an art museum.

a. Interpret the terms and coefficient in the equation.

b. Find the domain of the function. Is the domain discrete or continuous? Explain.

c. Graph the function using its domain.

8. A river otter consumes 2.5 pounds of fish per day.

a. Is the total number of pounds of fish consumed a function of the number of days? Explain.

b. Find the domain of the function. Is the domain discrete or continuous? Explain.

c. Graph the function using its domain.

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1.5 Extra Practice

In Exercises 1–3, evaluate the function when $x = -4$, 0, and 2.

1. $g(x) = 5x$

2. $s(x) = 12 - 0.25x$

3. $t(x) = 6 + 3x - 2$

4. Let $n(t)$ be the number of video games you have in your collection after t trips to the game store. Explain the meaning of each statement.

a. $n(0) = 8$

b. $n(3) = 14$

c. $n(5) > n(3)$

d. $n(7) - n(2) = 10$

In Exercises 5 and 6, find the value of x so that the function has the given value.

5. $b(x) = -3x + 1$; $b(x) = -20$

6. $m(x) = -\frac{3}{5}x - 4$; $m(x) = 2$

In Exercises 7–10, graph the linear function.

7. $k(x) = -3x$

8. $t(x) = 1 - 2x$

9. $s(x) = \frac{1}{2}x - 2$

10. $d(x) = 0.4x - 3$

11. The function $B(m) = 50m + 150$ represents the balance (in dollars) in your savings account after m months. The table shows the balance in your friend's savings account. Who has the better savings plan? Explain.

Month	Balance
2	\$330
4	\$410
6	\$490

12. Let f be a function. Use each statement to find a point on the graph of f.

a. $f\left(\frac{1}{2}\right)$ is equal to 6.

b. A solution of the equation $f(x) = 7.2$ is 9.

13. Let $g(x) = 16 - 8x$ and $h(x) = \frac{1}{4}x - 6$. Find $g(h(x))$. Simplify the expression.

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1.6 Extra Practice

In Exercises 1 and 2, graph the linear equation.

1. $y = -3$

2. $x = 2$

In Exercises 3–6, use intercepts to graph the linear equation. Label the points corresponding to the intercepts.

3. $-8x + 12y = 24$

4. $2x + y = 4$

5. $1 + x = 3y$

6. $\frac{3}{4} - \frac{1}{2}x = \frac{1}{4}y$

7. The school band is selling sweatshirts and baseball caps to raise \$9000 to attend a band competition. The equation $25x + 10y = 9000$ models this situation, where x is the number of sweatshirts sold and y is the number of baseball caps sold.

a. Interpret the terms and coefficients in the equation.

b. Graph the equation. Interpret the intercepts.

8. A dance team has two competitions on the same day. The coaches decide to split the 96-member team, sending some to each competition. Competition A requires four-member dance teams per event, and Competition B requires six-member dance teams per event.

a. Write an equation in standard form that models this situation. Do the intercepts of the graph make sense in this context? Explain.

b. How many teams should the coaches send to each competition so that all of the members attend a competition?

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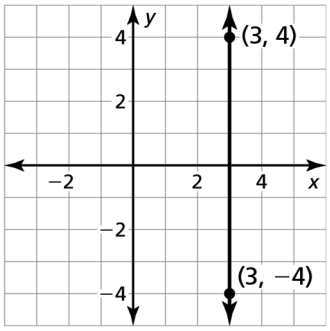
1.7 Extra Practice

In Exercises 1 and 2, describe the slope of the line. Then find the slope.

1.



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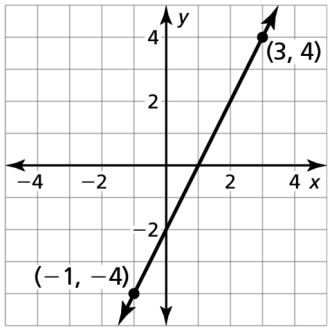

In Exercises 3 and 4, the points represented by the table lie on a line. Find the slope of the line.

3.

x	1	2	3	4
y	−2	−2	−2	−2

4.

x	−3	−1	1	3
y	11	3	−5	−13

In Exercises 5–7, find the slope and the *y*-intercept of the graph of the linear equation.

5. $6x + 4y = 24$

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

7. $y = 5x$

In Exercises 8–10, graph the linear equation. Identify the *x*-intercept.

8. $y = \frac{1}{2}x - 2$

9. $-0.2x - y = 1$

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

11. The function $f(x) = 150 - 8x$ represents the height (in feet) of a rescuer x seconds after the rescuer begins to rappel.

a. Graph the function and find its domain and range.

b. Interpret the terms and coefficients in the equation, and the x-intercept of the graph.

12. Find the value of k so that the graph of the equation $9kx + 2y = 18$ has a slope of $\frac{9}{4}$.

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1.8 Extra Practice

In Exercises 1–4, use the graphs of *f* and *g* to describe the transformation from the graph of *f* to the graph of *g*.

1. $f(x) = \frac{1}{2}x; g(x) = f(x) - 2$

2. $f(x) = -4x; g(x) = f(x - 3)$

3. $f(x) = -x - 1; g(x) = f(x + 4)$

4. $f(x) = \frac{1}{3}x + 2; g(x) = f(x) + \frac{1}{2}$

In Exercises 5 and 6, use the graphs of *f* and *h* to describe the transformation from the graph of *f* to the graph of *h*.

5. $f(x) = 3x; h(x) = f(-x)$

6. $f(x) = -2x + 1; h(x) = -f(x)$

In Exercises 7 and 8, use the graphs of *f* and *r* to describe the transformation from the graph of *f* to the graph of *r*.

7. $f(x) = x - 2; r(x) = 2f(x)$

8. $f(x) = x - 1; r(x) = f\left(\frac{1}{2}x\right)$

In Exercises 9 and 10, use the graphs of *f* and *h* to describe the transformation from the graph of *f* to the graph of *h*.

9. $f(x) = 8x + 3; h(x) = f(4x)$

10. $f(x) = -3x - 6; h(x) = \frac{2}{3}f(x)$

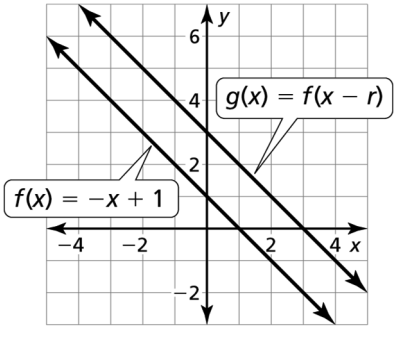
In Exercises 11 and 12, graph *f* and *g*. Describe the transformations from the graph of *f* to the graph of *g*.

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

12. $f(x) = 2x; g(x) = -2x + 1$

In Exercises 13 and 14, find the value of *r*.

13.



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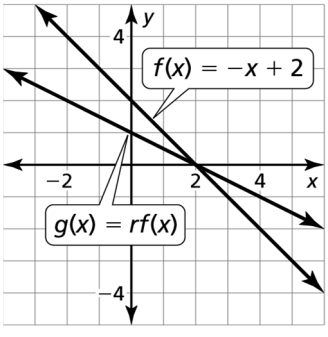


Name_____ Date_____

Chapter 1 Test Prep

1. Which inequality represents the sentence?

The product of a number n and 4 is no less than 26.

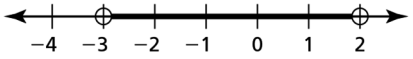
Ⓐ $4n \geq 26$

Ⓑ $4n \leq 26$

Ⓒ $4n > 26$

Ⓓ $4n < 26$

2. Which inequality represents the graph?



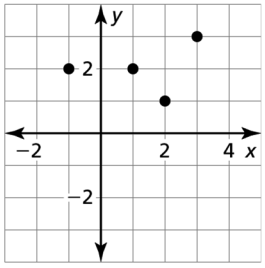
Ⓐ $-3 \leq m \leq 2$

Ⓑ $-3 < m < 2$

Ⓒ $m \leq -3$ *or* $m \geq 2$

Ⓓ $m < -3$ *or* $m > 2$

3. Consider the function represented by the graph.



Part A

Find the range of the function.

_____

Part B

Determine whether the domain of the function is *discrete* or *continuous*.

_____

4. What is the volume of a sphere with a diameter of 6 inches?

Ⓐ 288π in.^{3}

Ⓑ 36π in.^{3}

Ⓒ 24π in.^{3}

Ⓓ 12π in.^{3}

5. Solve $\frac{1}{2}(8x + 4) = 6(x + 2)$.

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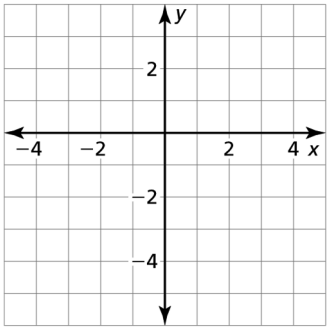
Chapter 1 Test Prep (continued)

6. Graph $4x - 2y = 8$.



7. Select all the relations that are functions.

Ⓐ $(0, 2), (1, 1), (2, 0), (3, 1)$

Ⓑ $(-2, 5), (-1, 3), (0, 1), (-2, 4)$

Ⓒ $(-1, 4), (0, 6), (4, 2), (3, -3)$

Ⓓ $(2, 4), (4, 2), (2, -4), (4, -2)$

Ⓔ $(-3, 5), (5, 0), (-1, -1), (-3, 7)$

Ⓕ $(-6, 1), (-3, -2), (6, -2), (1, 8)$

8. Select all the equations that represent a linear function.

Ⓐ $y = -4.1$

Ⓑ $y = x^3$

Ⓒ $y = \frac{x}{4}$

Ⓓ $x(x + 8) = y$

Ⓔ $5y - 2x = x$

9. The graph of a function is a line that is increasing for all values of x and has an x-intercept of -2. Which of the following statements is *not* true?

Ⓐ The y-intercept is positive.

Ⓑ The graph has only one x-intercept.

Ⓒ The function is positive when $x < -2$ and negative when $x > -2$.

Ⓓ $y \to -\infty$ as $x \to -\infty$ and $y \to +\infty$ as $x \to +\infty$.

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Chapter 1 Test Prep (continued)

10. You want to eat less than 2200 calories each day. You eat 350 calories for breakfast and 650 calories for lunch. Write an inequality that describes the possible numbers of calories x you can eat during the rest of the day.

_____

11. For $t(x) = 3x - 5$, find the value of x for which $t(x) = 4$.

Ⓐ -1

Ⓑ $-\frac{1}{3}$

Ⓒ 3

Ⓓ 7

12. Write the interval $-19 \leq x < 7$ in interval notation.

The interval in interval notation is [Ⓐ (Ⓑ [Ⓒ) Ⓓ]] $-19, 7$ [Ⓐ (Ⓑ [Ⓒ) Ⓓ]].

13. Which of the following represents a linear function with a slope of $\frac{1}{2}$ and a y-intercept of 3.

Ⓐ $3x - 9 = 6y$

Ⓑ $f(x)$ increases by 2 units for every 1 unit x increases, and $f(0) = 3$.

Ⓒ

x	-10	-8	-6	-4
y	8	7	6	5

Ⓓ $-x + 2y = 6$

14. Write a function g in terms of f so that the statement is true.

The graph of g is a horizontal shrink of the graph of f by a factor of $\frac{1}{4}$.

_____

Name _____ Date _____

Chapter 1 Test Prep (continued)

15. Describe the transformations from the graph of $f(x) = 2x - 3$ to the graph of $g(x) = 2x - 13$.

Ⓐ The graph of g is a vertical translation 13 units up.

Ⓑ The graph of g is a vertical translation 13 units down.

Ⓒ The graph of g is a horizontal translation 5 units right.

Ⓓ The graph of g is a horizontal translation 5 units left.

16. Select all the pairs of values that make the relation a function.

$(-4, 6), (-2, 0), (0, 5), (3, 4), (x, y)$

Ⓐ $x = 6, y = 2$

Ⓑ $x = 4, y = 5$

Ⓒ $x = 2, y = 3$

Ⓓ $x = 0, y = 8$

Ⓔ $x = -2, y = -1$

17. The formula $K = \frac{5}{9}(F - 32) + 273.15$ converts temperatures from degrees Fahrenheit F to Kelvin K. An object in a laboratory is cooled to 73.15 Kelvin. What is the temperature of the object in degrees Celsius?

Ⓐ −328°C

Ⓑ −200°C

Ⓒ 200°C

Ⓓ 346.3°C

18. You make oatmeal cookies and oatmeal bars for a bake sale. One batch of oatmeal cookies requires c cups of oats, and one batch of oatmeal bars requires b cups of oats. You make X batches of oatmeal cookies and Y batches of oatmeal bars. Which expression represents the total amount of oats (in cups) you need?

Ⓐ $Xc + Yb$

Ⓑ $c + b$

Ⓒ $X + Y$

Ⓓ $\frac{X}{c} + \frac{Y}{b}$