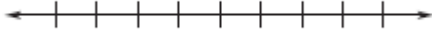


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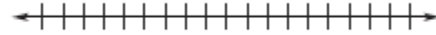
## LESSON 1.1

**Graph the numbers on a number line. Decide which number is greater and use the symbol  $<$  or  $>$  to show the relationship.**

1.  $-5$  and  $-6$



2.  $\sqrt{3}$  and  $0.75$



**Write the numbers in increasing order.**

3.  $2, -\frac{3}{7}, 0.75, -\frac{3}{2}$

4.  $3, \sqrt{10}, \frac{3}{4}, -1.5$

**Identify the property that the statement illustrates.**

5.  $(-3)(1) = -3$

6.  $5(4 + (-5)) = 5 \cdot 4 + 5 \cdot (-5)$

7.  $1 + (3 + 2) = 1 + (2 + 3)$

8.  $a + (b + c) = (a + b) + c$

9.  $a \cdot \frac{1}{a} = 1$

10.  $a \cdot b = b \cdot a$

**Select and perform an operation to answer the question.**

11. What is the sum of  $-3$  and  $2$ ?12. What is the difference of  $-4$  and  $-3$ ?13. What is the product of  $-4$  and  $5$ ?14. What is the product of  $-6$  and  $-3$ ?15. What is the quotient of  $49$  and  $-7$ ?16. What is the quotient of  $-21$  and  $-\frac{7}{3}$ ?

**17. Gas Mileage** A car can travel 25 miles per gallon of gas. The gas tank contains 9 gallons. How far can the car travel without refueling?

**18. Birthday Cake** Ten classmates are going to share a birthday cake after school. The rectangular birthday cake is 5 pieces long and 4 pieces wide. Each person eats the same number of pieces. How many pieces does each person eat?

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**LESSON 1.2****Write the expression using exponents.**

1.  $a \cdot a \cdot a$

2.  $(-7) \cdot (-7) \cdot (-7) \cdot (-7)$

3.  $(2x \cdot 2x \cdot 2x) + 5$

4.  $(3a \cdot 3a) - (b \cdot b \cdot b \cdot b)$

**Evaluate the expression.**

5.  $(-4)^2$

6.  $-2^4$

7.  $3 - (4 - 2) \cdot 5$

8.  $1 + (5^2 - 10) \div 5$

9.  $(6 - 5)^3 + 14 \div (2 + 5)$

10.  $24 - (1 + 1)^4 \div 4$

**Evaluate the expression for the given value of  $x$ .**

11.  $x(x - 3)$  when  $x = 7$

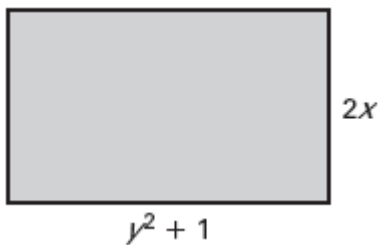
12.  $3x^2 - 2x$  when  $x = -2$

13.  $2x^2 \div (4 - 2x) + 2$  when  $x = 4$

14.  $35 - \frac{2}{3} + x^2 \div x$  when  $x = 9$

**Write an expression for the area of the figure. Evaluate the expression for the given values of the variables.**

15.  $x = 3, y = 3$



**16. Books** You want to buy either a paperback or hard covered book as a gift for five friends. Paperbacks cost \$6.95 each and hard covered books cost \$24.99 each. Write and simplify an expression for the total amount you spend if  $x$  of the books are paperback. Evaluate the expression if three of your friends get a paperback.

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LESSON 1.3

Solve the equation. Check your solution.

1.  $x - 9 = 12$

2.  $3 - x = 2$

3.  $-14 + 2x = 6$

4.  $-4x = -14$

5.  $\frac{2}{3}x + 1 = 13$

6.  $x + 6 = 3(5 - x)$

7.  $27 - 2x = 2(x + 1)$

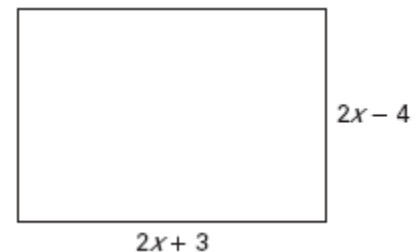
8.  $3(x - 2) = 2(2x - 3)$

9.  $\frac{1}{2}(14x + 2) = 3(2 - 3x)$

10.  $5x = \frac{4}{5}(5x - 2)$

11.  $x + 6 = 3(3 - x)$

12. **Perimeter** The perimeter of the rectangle below is 78 feet. Find its dimensions.



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**LESSON 1.4****Substitute the given value of  $x$  into the equation. Then solve the equation for  $y$ .**

1.  $7x - 3y = 6; x = 3$

2.  $6x + 5y = -7; x = -2$

3.  $xy = 12 + 3x; x = 4$

4.  $\frac{2}{3}x = 2y - \frac{2}{5}; x = -9$

**Solve the equation for  $y$ . Then find the value of  $y$  for the given value of  $x$ .**

5.  $3x - 6y = 6; x = 2$

6.  $-2x + 2 = 5y - 1; x = 5$

7.  $2xy + 1 = xy + 3; x = 2$

8.  $\frac{1}{2}x - y = \frac{3}{2}x - 3; x = 7$

**Solve the formula for the indicated variable.**9. *Fahrenheit to Celsius*

Solve for  $F$ :  $C = \frac{5}{9}(F - 32)$

12. *Volume of a Right Circular Cylinder*

Solve for  $h$ :  $V = \pi r^2 h$

**Solve the formula for the indicated variable. Then use the given information to find the value of the variable. Include units of measure in the answer.**13. *Area of a Parallelogram*

Solve for  $h$ :  $A = bh$

Find  $h$  when,  $A = 81 \text{ cm}^2$  and  $b = 9 \text{ cm}$ .

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LESSON 1.5

Use the formula  $d = rt$  for distance traveled to solve for the missing variable.

1.  $d = \underline{\quad? \quad}$ ,  $r = 55$  mi/h,  $t = 3$  h

2.  $d = 240$  mi,  $r = 60$  mi/h,  $t = \underline{\quad? \quad}$

3.  $d = 552$  mi,  $r = \underline{\quad? \quad}$ ,  $t = 8$  h

Look for a pattern in the table. Then write an equation that represents the table.

4.

$x$	0	1	2	3
$y$	5	10	15	20

5.

$x$	0	1	2	3
$y$	89	82	75	68

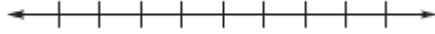
6. **Fastest Solar Powered Vehicle** The highest speed reached by a solar powered vehicle is 48.71 miles per hour. This record was set by a car called Sunraycer on June 24, 1988 in Mesa, Arizona. How far could Sunraycer travel in 2.5 hours at this speed?

7. **Cable Bill** Your local cable company charges \$29.99 per month for basic cable service. Premium channels are available for a surcharge of \$5.95 per channel. You have \$70 per month budgeted for cable. How many premium channels can you purchase?

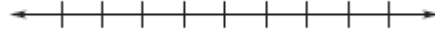
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**LESSON 1.6****Graph the solution of the inequality.**

1.  $0 < x < 3$



2.  $x \leq -2$  or  $x > 1$

**Solve the inequality and then graph the solution.**

3.  $x - 5 > 9$



4.  $4x \leq 48$



5.  $-x + 4 \geq -2$



6.  $5 - 5x \leq 10$



7.  $x + 8 \leq 2x - 2$



8.  $-3 < x - 3 < 0$



9.  $x + 2 \leq -1$  or  $x - 2 \geq 1$



10.  $x - 3 < -4$  or  $x - 1 > 5$



**11. Exam Grades** The grades for a course are based on 5 exams and 1 final exam. All six of these tests are worth 100 points. To receive an A in the course, you must earn at least 552 points. Your grades on the 5 exams are as follows: 88, 96, 93, 91, and 89. Write an inequality that represents the various grades you can earn on the final exam and still get an A. Solve the inequality.

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**LESSON 1.7****Decide whether the number is a solution of the equation.**

1.  $|2x + 3| = 7; 2$

2.  $|3x - 5| = 2; -1$

3.  $\left|\frac{1}{3}x + 3\right| = 6; -9$

**Solve the equation.**

4.  $|x - 3| = 5$

5.  $|2x + 6| = 12$

6.  $|1 - 2x| = 9$

**Solve the inequality.**

7.  $|x - 3| < 8$

8.  $|2x - 3| \geq 5$

9.  $|4 - x| \leq 8$

10.  $\left|\frac{1}{3}x + 4\right| > 1$

**11. Homework** On a slow weekday, you spend at least two hours on homework. On a busy weekday, you spend as much as five hours on homework. Write an absolute value inequality that represents the number of hours you spend doing homework on a typical weekday.

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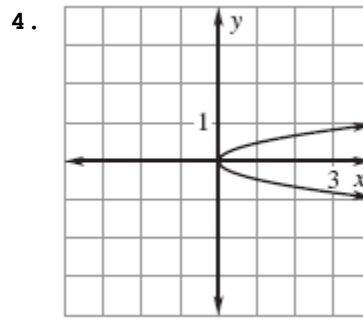
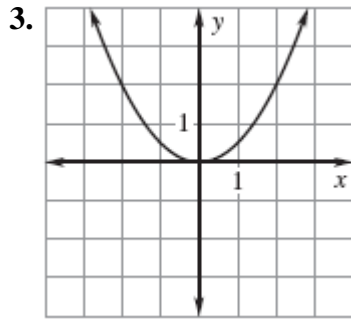
**LESSON 2.1**

Identify the domain and range of the given relation. Then tell whether the relation is a function.

1.  $(0, 3), (1, 1), (2, 2), (3, 4), (4, 2)$   
 $(0, 3), (1, 5)$

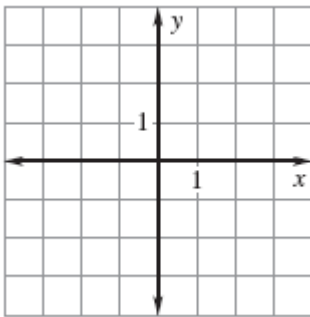
2.  $(-2, -3), (-1, -1), (0, 1),$

Use the vertical line test to determine whether the relation is a function.

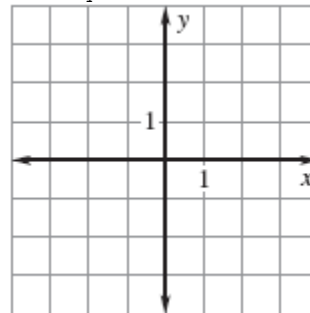


Graph the equation.

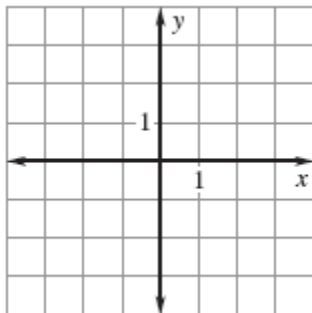
5.  $y = 3x + 2$



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



7.  $y = -1$



Tell whether the function is linear. Then evaluate the function for the given value of  $x$ .

8.  $f(x) = x^2 + x - 2; f(-1)$

9.  $f(x) = \frac{2}{3}x - 5; f(9)$



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**LESSON 2.2**

Find the slope of the line passing through the given points.

1.  $(2, 1), (6, 9)$                       2.  $(1, 1), (2, -5)$                       3.  $(3, -2), (-1, 7)$

Find the slope of the line passing through the given points. Then tell whether the line rises, falls, is horizontal, or is vertical.

4.  $(-2, 4), (2, 5)$                       5.  $(3, 1), (3, -2)$                       6.  $(8, 15), (12, -1)$   
7.  $(5, -2), (2, -2)$

Tell whether the lines are parallel, perpendicular, or neither.

8. Line 1: through  $(-6, 2), (3, 5)$   
Line 2: through  $(4, 1), (1, 0)$
9. Line 1: through  $(7, 3), (8, 7)$   
Line 2: through  $(-5, -4), (-1, -5)$
10. Line 1: through  $(5, 2), (1, -7)$   
Line 2: through  $(-1, 3), (9, -1)$

**11. Fuel Efficiency** On Friday, you left for a weekend camping trip with 110 miles on the odometer and 14.5 gallons of gas in the tank of your car. When you returned on Sunday, the odometer read 299 miles and you still had 7.5 gallons of gas left. What was the fuel efficiency of your car on this trip?

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**LESSON 2.3**

**Find the slope and y- intercept of the line.**

1.  $y = 7x + 8$

2.  $y = -13x$

3.  $-3x + 2y - 4 = 0$

**Find the x- and y- intercepts of the line with the given equation.**

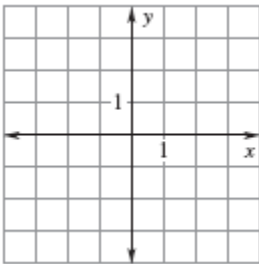
4.  $y = 4x - 1$

5.  $y = \frac{1}{2}x + 2$

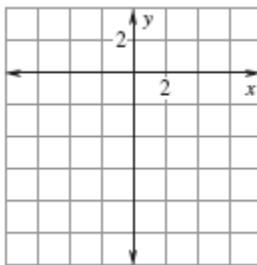
6.  $6x + 4y = -5$

**Graph the equation.**

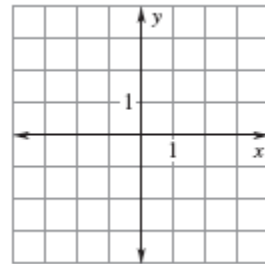
7.  $y = 3x + 3$



8.  $y = -2x - 6$

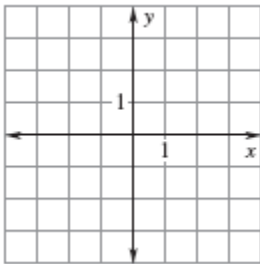


9.  $12x - 8y = -24$

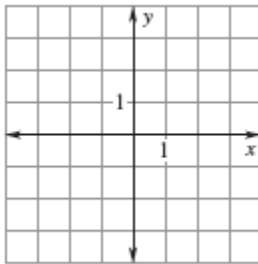


10.  $x - 2y + 2 = 0$

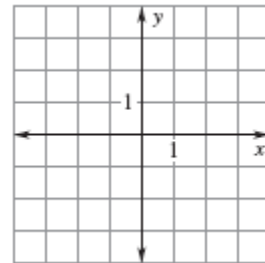
1



11.  $-3y = 6x$



12.  $6y - 18 = 0$



**13. Hot Dogs and Hamburgers** The caterer for your class picnic charges \$1 for each hot dog and \$2 for each hamburger. You have \$48 to spend. Write a model that shows the different numbers of hot dogs and hamburgers that you could purchase.

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**LESSON 2.4**

**Write an equation of the line that has the given slope and y-intercept.**

1.  $m = 3, b = -4$                       2.  $m = -4, b = 0$                       3.  $m = 0, b = -5$

**Write an equation of the line that passes through the given point and has the given slope.**

4.  $(4, 3), m = 1$                       5.  $(-1, 1), m = -2$                       6.  $(12, 4), m = 0$

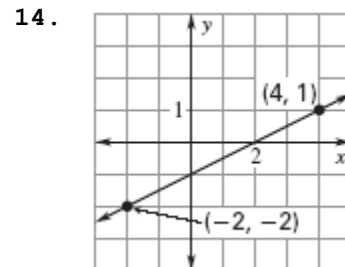
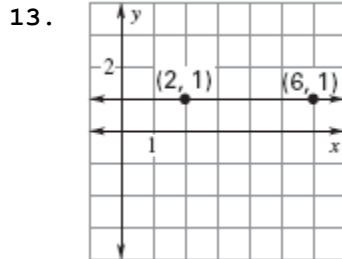
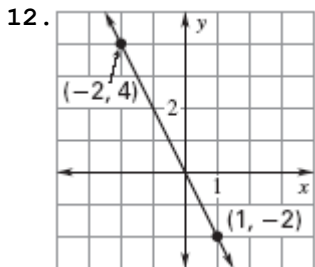
**Write an equation of the line that passes through the given point and satisfies the given condition.**

7.  $(-2, 3)$ ; parallel to  $y = 4x - 3$                       8.  $(-1, -4)$ ; perpendicular to  $y = 2x + 5$

**Write an equation of the line that passes through the given points.**

9.  $(3, 4), (0, 3)$                       10.  $(1, -4), (-2, 6)$                       11.  $(-8, -3), (7, 0)$

**Write an equation of the line.**



**15. Video Store** The membership to your local video store is \$10 per year and the DVD rental rate is \$3.95 per DVD. Write an equation that models the total amount of money you will spend on DVD rentals this year.

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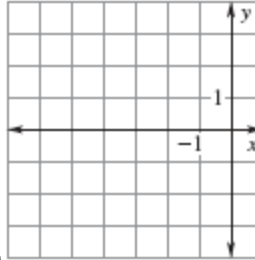
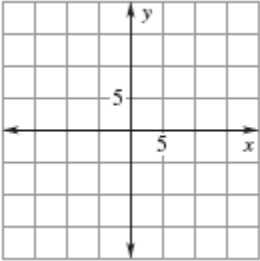
LESSON 2.5

Write and graph a direct variation equation that has the given ordered pair as a solution.

Remember that the direct variation equation is  $y=ax$

1.  $(5, 10)$

2.  $(-6, 3)$



The variables  $x$ -and  $y$  vary directly. Write an equation that relates  $x$  and  $y$ . Then find  $y$  when  $x = 3$ .

3.  $x = 6, y = -8$

4.  $x = -4, y = -16$

Tell whether the equation represents direct variation. If it does, give the constant of variation.

5.  $y = -3x$

6.  $y + 2 = 8x$

$3y = \frac{9}{2}x$

Tell whether the data in the table show a direct variation. If so, write an equation relating  $x$  and  $y$ .

8.

$x$	-2	-1	0	1	2
$y$	4	3	2	1	0

9. **Movies** The cost  $c$  of going to the movies varies directly with the number  $n$  of people attending. A group of four paid \$14 to go to the movies on Friday. Write an equation that relates  $c$  and  $n$ . How much would it cost for 7 people to go to the movies?

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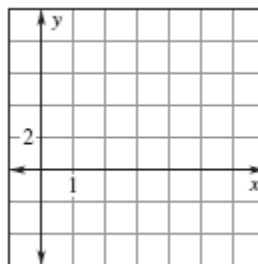
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**LESSON 2.6**

Draw a scatter plot of the data. Tell whether the data have a *positive correlation*, a *negative correlation*, or *approximately no correlation*.

1.

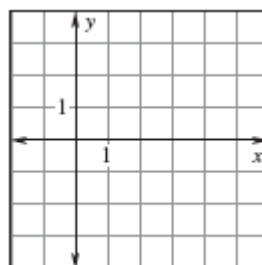
<b>x</b>	0	0.5	1.25	2.75	3
<b>y</b>	-3.5	-2	-0.75	1.25	2.5
<b>x</b>	3.5	4.25	4.75	5.25	6
<b>y</b>	3.25	5.5	7	8.25	9.5



Draw a scatter plot of the data. Approximate the best-fitting line for the data.

2.

<b>x</b>	0.5	1	1.5	2	2.5
<b>y</b>	-2.25	-2.75	-1.7	-0.5	0
<b>x</b>	3	3.5	4	4.5	5
<b>y</b>	-0.6	1.2	1.9	2.5	2.3

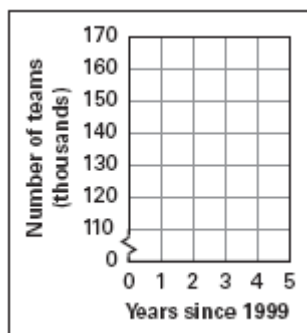


**In Exercises 3-4 use the following information.**

**Softball** The table shows the number of adult softball teams for the years 1999 to 2003.

Year	1999	2000	2001	2002	2003
Number of teams (in thousands)	163	155	149	143	119

3. Draw a scatter plot for the data. Let  $t$  represent the number of years since 1999.



4. Using this model, predict the number of adult softball teams in 2010.