NAME ______________________________ DATE ______________ PERIOD ________

Lesson 1 Reteach

Solve Equations with Rational Coefficients

To solve an equation when the coefficient is a rational number, multiply each side by the multiplicative inverse of the fraction.

Example

Solve $\frac{4}{7}x = 16$. Check your solution.

$\frac{4}{7}x = 16$	Write the equation.
$\left(\frac{7}{4}\right) \cdot \frac{4}{7}x = \left(\frac{7}{4}\right) \cdot 16$	Multiply each side by the multiplicative inverse of $\frac{4}{7}$, $\frac{7}{4}$.
$\frac{\cancel{7}^{1}}{\cancel{4}_{1}} \cdot \frac{\cancel{4}^{1}}{\cancel{7}_{1}}x = \frac{7}{\cancel{4}_{1}} \cdot \frac{\cancel{16}^{4}}{1}$	Write 16 as $\frac{16}{1}$. Divide out common factors.
$x = 28$	Simplify.

Check

$\frac{4}{7}x = 16$	Write the original equation.
$\frac{4}{7}(28) \stackrel{?}{=} 16$	Replace *x* with 28.
$\frac{4}{\cancel{7}_{1}}\left(\frac{\cancel{28}^{4}}{1}\right) \stackrel{?}{=} 16$	Write 28 as $\frac{28}{1}$. Divide out common factors.
$16 = 16$ ✓	This sentence is true.

Solve each equation. Check your solution.

1. $\frac{1}{6}x = 4$

2. $\frac{5}{6}n = 15$

3. $\frac{2}{3}d = \frac{14}{15}$

4. $\frac{3}{4}w = \frac{21}{30}$

5. $\frac{3}{5}t = 12$

6. $\frac{1}{8}a = \frac{1}{3}$

7. $-\frac{1}{6}x = -5$

8. $\frac{9}{4}r = -\frac{27}{32}$

9. $-\frac{2}{5}m = 4$

NAME ______________________ DATE ____________ PERIOD ________

Lesson 2 Reteach

Solve Two-Step Equations

A **two-step equation** contains two operations. To solve a two-step equation, undo each operation in reverse order.

Example 1

Solve $2a + 6 = 14$. Check your solution.

$2a + 6 = 14$	Write the equation.
$\underline{\quad -6 = -6}$	Subtraction Property of Equality
$2a = 8$	Simplify.
$\frac{2a}{2} = \frac{8}{2}$	Division Property of Equality
$a = 4$	Simplify.
Check $2a + 6 = 14$	Write the equation.
$2(4) + 6 \stackrel{?}{=} 14$	Replace *a* with 4 to see if the sentence is true.
$14 = 14$ ✓	The sentence is true.

The solution is 4.

Sometimes it is necessary to combine like terms before solving an equation.

Example 2

Solve $5 = 8x - 2x - 7$. Check your solution.

$5 = 6x - 7$	Write the equation.
$5 + 7 = 6x - 7 + 7$	Addition Property of Equality
$12 = 6x$	Simplify.
$\frac{12}{6} = \frac{6x}{6}$	Division Property of Equality
$2 = x$	Simplify.
The solution is 2.	Check this solution.

Exercises

Solve each equation. Check your solution.

1. $2d + 7 = 9$

2. $11 = 3z + 5$

3. $2s - 4 = 6$

4. $-12 = 5r + 8$

5. $-6p - 3 = 9$

6. $-14 = 4x - 2$

7. $2c + 2 = 10$

8. $3 + 9n = 21$

9. $21 = 5 - r$

10. $8 - 5b = -7$

11. $-10 = 6 - 4m$

12. $-3t + 4 = 19$

13. $2 + \frac{a}{6} = 5$

14. $-\frac{1}{3}q - 7 = -3$

15. $4 - \frac{v}{5} = 0$

NAME ______________________________ DATE ______________ PERIOD ________

Lesson 3 Reteach

Write Two-Step Equations

Some verbal sentences translate into two-step equations.

Example 1

Translate each sentence into an equation.

Sentence	**Equation**
Four more than three times a number is 19.	$3n + 4 = 19$
Five is seven less than twice a number.	$5 = 2n - 7$
Seven more than the quotient of a number and 3 is 10.	$7 + \frac{n}{3} = 10$

After a sentence has been translated into a two-step equation, you can solve the equation.

Example 2

Translate the sentence into an equation. Then find the number.
Thirteen more than five times a number is 28.

Words Thirteen more than five times a number is 28.

Variable Let n = the number.

Equation

$$\begin{aligned} 5n + 13 &= 28 && \text{Write the equation.} \\ -13 &= -13 && \text{Subtraction Property of Equality} \\ \hline 5n &= 15 && \text{Simplify.} \\ \frac{5n}{5} &= \frac{15}{5} && \text{Division Property of Equality} \\ n &= 3 \end{aligned}$$

Therefore, the number is 3.

Exercises

Define a variable. Then translate each sentence into an equation. Then find each number.

1. Five more than twice a number is 7.

2. Fourteen more than three times a number is 2.

3. Seven less than twice a number is 5.

4. Two more than four times a number is -10.

5. Eight less than three times a number is -14.

6. Three more than the quotient of a number and 2 is 7.

NAME ________________________ DATE ____________ PERIOD ________

Lesson 4 Reteach

Solve Equations with Variables on Each Side

Some equations, like $3x - 9 = 6x$, have variables on each side of the equals sign. Use the Addition or Subtraction Property of Equality to write an equivalent equation with the variables on one side of the equals sign. Then solve the equation.

Example 1

Solve $3x - 9 = 6x$. Check your solution.

$3x - 9 = 6x$	Write the equation.
$3x - 3x - 9 = 6x - 3x$	Subtraction Property of Equality
$-9 = 3x$	Simplify by combining like terms.
$-3 = x$	Mentally divide each side by 3.

To check your solution, replace x with -3 in the original equation.

Check $3x - 9 = 6x$	Write the equation.
$3(-3) - 9 \stackrel{?}{=} 6(-3)$	Replace x with -3.
$-18 = -18$ ✓	The sentence is true.

The solution is -3.

Example 2

Solve $4a - 7 = 5 - 2a$.

$4a - 7 = 5 - 2a$	Write the equation.
$4a + 2a - 7 = 5 - 2a + 2a$	Addition Property of Equality
$6a - 7 = 5$	Simplify by combining like terms.
$6a - 7 + 7 = 5 + 7$	Addition Property of Equality
$6a = 12$	Simplify.
$a = 2$	Mentally divide each side by 6.
The solution is 2.	Check this solution.

Exercises

Solve each equation. Check your solution.

1. $6s - 10 = s$

2. $8r = 4r - 16$

3. $25 - 3u = 2u$

4. $14t - 8 = 6t$

5. $k + 20 = 9k - 4$

6. $11m + 13 = m + 23$

7. $-4b - 5 = 3b + 9$

8. $6y - 1 = 27 - y$

9. $1.6h - 72 = 4h - 30$

10. $8.5 - 3z = -8z$

11. $10x + 8 = 5x - 3$

12. $16 - 7d = -3d + 2$

NAME ______________________________________ DATE ________________ PERIOD _______

Lesson 5 Reteach

Solve Multi-Step Equations

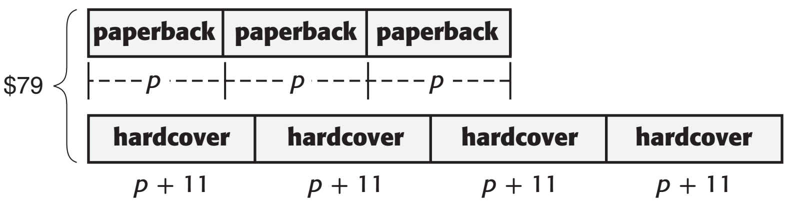
Example 1

Solve $2(4a - 5) = 30$.

$2(4a - 5) = 30$	Write the equation.
$8a - 10 = 30$	Distributive Property
$8a - 10 + 10 = 30 + 10$	Addition Property of Equality
$8a = 40$	Simplify.
$\frac{8a}{8} = \frac{40}{8}$	Division Property of Equality
$a = 5$	Simplify.

Example 2

BOOKS Roland has 3 paperback books and 4 hardcover books. Each hardcover book is worth \$11 more than each paperback book. If the value of all of his books is \$79, what is the cost of one paperback book?



Write an equation to represent the bar model.

$3p + 4(p + 11) = 79$	Write the equation.
$3p + 4p + 44 = 79$	Distributive Property
$7p + 44 = 79$	Simplify.
$7p + 44 + (-44) = 79 + (-44)$	Addition Property of Equality
$7p = 35$	Simplify.
$\frac{7p}{7} = \frac{35}{7}$	Division Property of Equality
$p = 5$	Simplify.

So, the cost of one paperback book is \$5.

Exercises

Solve each equation. Check your solution.

1. $2(3b - 1) = 40$

2. $49 = -7(t + 1)$

3. $5(1 - n) = 75$

4. $4(x - 2) = 3(x - 3)$

5. $-5(p + 2) = 2(2p - 15) + p$

6. $4z - 6 = 6(z + 2) + 8$

NAME ____ DATE ___________________ PERIOD _________

Lesson 1 Reteach

Constant Rate of Change

Relationships that have straight-line graphs are called **linear relationships**. The rate of change between any two points in a linear relationship is the same, or constant. A linear relationship has a **constant rate of change.**

Example

The height of a hot air balloon after a few seconds is shown. Determine whether the relationship between the two quantities is linear. If so, find the constant rate of change. If not, explain your reasoning.

	Time (s)	Height of Hot Air Balloon (ft)	
	1	9	
+1	2	18	+9
+1	3	27	+9
+1	4	36	+9

As the number of seconds increase by 1, the height of the balloon increases by 9 feet.

Since the rate of change is constant, this is a linear relationship. The constant rate of change is $\frac{9}{1}$ or 9 feet per second. This means that the balloon is rising 9 feet per second.

Exercises

Determine whether the relationship between the two quantities described in each table is linear. If so, find the constant rate of change. If not, explain your reasoning.

1.

Greeting Cards	
Number of Cards	**Total Cost($)**
1	1.50
2	3.00
3	4.50
4	6.00

2.

Party Table Rental	
Number of Tables	**Cost($)**
1	10
2	18
3	24
4	28

3.

Donuts	
Dozens Bought	**Cost ($)**
2	3.25
4	6.50
6	9.75
8	13.00

4.

Running	
Time (min)	**Distance(mi)**
15	2
30	4
45	5
60	6

NAME ______________________________ DATE ______________ PERIOD _________

Lesson 2 Reteach

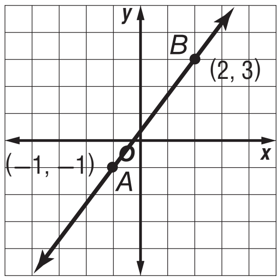
Slope

The slope m of a line passing through points (x_1, y_1) and (x_2, y_2) is the ratio of the difference in the y-coordinates to the corresponding difference in the x-coordinates. As an equation, the slope is given by

$$m = \frac{y_2 - y_1}{x_2 - x_1}, \text{ where } x_1 \neq x_2.$$

Example 1

Find the slope of the line that passes through $A(-1, -1)$ and $B(2, 3)$.



$m = \frac{y_2 - y_1}{x_2 - x_1}$ Slope formula

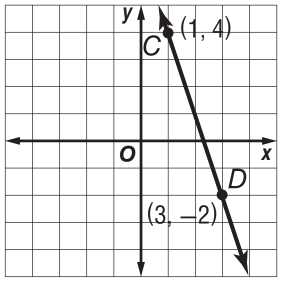
$m = \frac{3 - (-1)}{2 - (-1)}$ $(x_1, y_1) = (-1, -1)$, $(x_2, y_2) = (2, 3)$

$m = \frac{4}{3}$ Simplify.

Check When going from left to right, the graph of the line slants upward. This is correct for a positive slope.

Example 2

Find the slope of the line that passes through $C(1, 4)$ and $D(3, -2)$.



$m = \frac{y_2 - y_1}{x_2 - x_1}$ Slope formula

$m = \frac{-2 - 4}{3 - 1}$ $(x_1, y_1) = (1, 4)$, $(x_2, y_2) = (3, -2)$

$m = \frac{-6}{2}$ or -3 Simplify.

Check When going from left to right, the graph of the line slants downward. This is correct for a negative slope.

Exercises

Find the slope of the line that passes through each pair of points.

1. $A(0, 1)$, $B(3, 4)$ **2.** $C(1, -2)$, $D(3, 2)$ **3.** $E(4, -4)$, $F(2, 2)$

4. $G(3, 1)$, $H(6, 3)$ **5.** $I(4, 3)$, $J(2, 4)$ **6.** $K(-4, 4)$, $L(5, 4)$

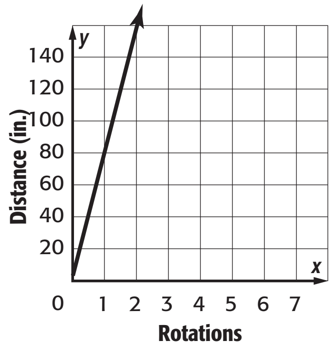
Lesson 3 Reteach

Equations in y = mx Form

When the ratio of two variable quantities is constant, their relationship is called a **direct variation**.

Example 1

The distance that a bicycle travels varies directly with the number of rotations that its tires make. Determine the distance that the bicycle travels for each rotation.



Since the graph of the data forms a line, the rate of change is constant. Use the graph to find the constant ratio.

$\frac{\text{distance traveled}}{\text{\# of rotations}} \longrightarrow \frac{80}{1} \quad \frac{160}{2} \text{ or } \frac{80}{1} \quad \frac{240}{3} \text{ or } \frac{80}{1} \quad \frac{320}{4} \text{ or } \frac{80}{1}$

The bicycle travels 80 inches for each rotation of the tires.

Example 2

The number of trading cards varies directly as the number of packages. If there are 84 cards in 7 packages, how many cards are in 12 packages?

Let x = the number of packages and y = the total number of cards.

$y = mx$	Direct variation equation
$84 = m(7)$	$y = 84$, $x = 7$
$12 = m$	Simplify.
$y = 12x$	Substitute for $m = 12$.

Use the equation to find y when $x = 12$.

$y = 12x$	
$y = 12(12)$	$x = 12$
$y = 144$	Multiply.

There are 144 cards in 12 packages.

Exercises

Write an equation and solve the given situation.

1. **TICKETS** Four friends bought movie tickets for \$41. The next day seven friends bought movie tickets for \$71.75. What is the price of one ticket?

2. **JOBS** Barney earns \$24.75 in three hours. If the amount that he earns varies directly with the number of hours, how much would he earn in 20 hours?

NAME ______________________________ DATE ______________ PERIOD ________

Lesson 5 Reteach

Graph a Line Using Intercepts

Standard form is when an equation is written in the form $Ax + By = C$.

Example

State the x- and y-intercepts of $3x + 2y = 6$. Then graph the function.

Step 1 Find the x-intercept.

To find the x-intercept, let $y = 0$.

$3x + 2y = 6$	Write the equation.
$3x + 2(0) = 6$	Replace y with 0.
$3x + 0 = 6$	Multiply.
$3x = 6$	Simplify.
$x = 2$	Divide each side by 3.

The x-intercept is 2.

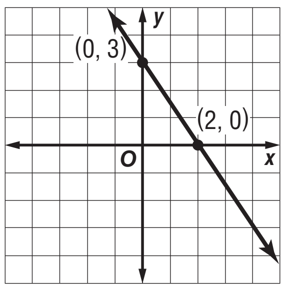
Step 2 Find the y-intercept.

To find the y-intercept, let $x = 0$.

$3x + 2y = 6$	Write the equation.
$3(0) + 2y = 6$	Replace x with 0.
$0 + 2y = 6$	Multiply.
$2y = 6$	Simplify.
$y = 3$	Divide each side by 2.

The y-intercept is 3.

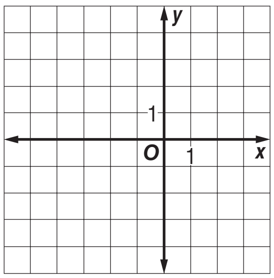
Step 3 Graph the points (2, 0) and (0, 3) on a coordinate plane. Then connect the points.



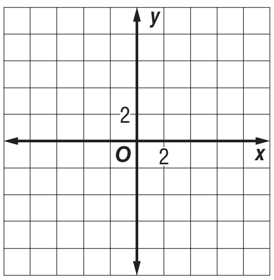
Exercises

State the x- and y-intercepts of each function. Then graph the function.

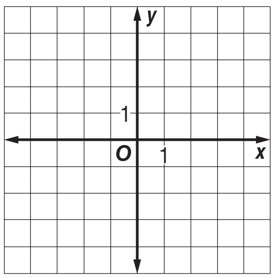
1. $3x + 5y = -15$



2. $-2x + y = 8$



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



NAME ______________________________ DATE ______________ PERIOD ________

Lesson 4 Reteach

Slope-Intercept Form

Linear equations are often written in the form $y = mx + b$. This is called the **slope-intercept form**. When an equation is written in this form, m is the slope and b is the y-intercept.

Example 1

State the slope and the y-intercept of the graph of $y = x - 3$.

$y = x - 3$	Write the original equation.
$y = 1x + (-3)$	Write the equation in the form $y = mx + b$.
$\uparrow \qquad \uparrow$	
$y = mx + \ b$	$m = 1$, $b = -3$

The slope of the graph is 1, and the y-intercept is -3.

You can use the slope-intercept form of an equation to graph the equation.

Example 2

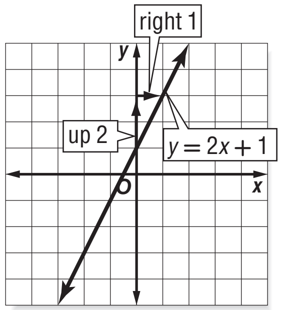
Graph $y = 2x + 1$ using the slope and y-intercept.

Step 1 Find the slope and y-intercept.
$y = 2x + 1$ slope = 2, y-intercept = 1

Step 2 Graph the y-intercept 1.

Step 3 Write the slope 2 as $\frac{2}{1}$. Use it to locate a second point on the line.

$m = \dfrac{2}{1}$ ← change in y : up 2 units; ← change in x : right 1 unit



Step 4 Draw a line through the two points.

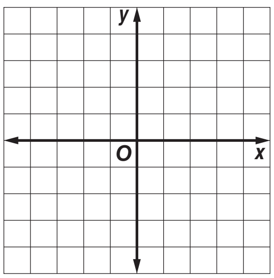
Exercises

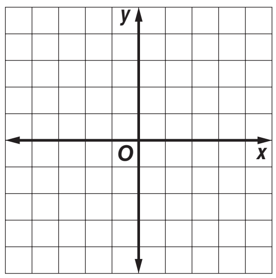
State the slope and the y-intercept for the graph of each equation.

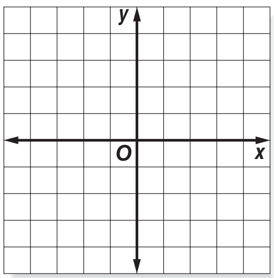
1. $y = x + 1$ **2.** $y = 2x - 4$ **3.** $y = \frac{1}{2}x - 1$

Graph each equation using the slope and the y-intercept.

4. $y = 2x + 2$ **5.** $y = x - 1$ **6.** $y = \frac{1}{2}x + 2$







NAME ______________________________ DATE ______________ PERIOD ________

Lesson 6 Reteach

Write Linear Equations

Point-slope form is when an equation is written in the form $y - y_1 = m(x - x_1)$, where (x_1, y_1) is a given point on a nonvertical line and m is the slope of the line.

Example

Write an equation in point-slope form and slope-intercept form for a line that passes through (2, –5) and has a slope of 4.

Step 1

$y - y_1 = m(x - x_1)$	Point-slope form
$y - (-5) = 4(x - 2)$	$(x_1, y_1) = (2, -5)$, $m = 4$
$y + 5 = 4(x - 2)$	Simplify.

Step 2

$y + 5 = 4(x - 2)$	Write the equation.
$y + 5 = 4x - 8$	Distributive Property
$-5 = \quad -5$	Addition Property of Equality
$y = 4x - 13$	Simplify.

Check: Substitute the coordinates of the given point in the equation.

$$y = 4x - 13$$
$$-5 \stackrel{?}{=} 4(2) - 13$$
$$-5 = -5 \checkmark$$

Exercises

Write an equation in point-slope form and slope-intercept form for each line.

1. passes through (–4,0), slope = 2

2. passes through (–2, –1), slope = $\frac{1}{2}$

3. passes through (3, –6), slope = $\frac{2}{3}$

4. passes through (–4, –3), slope = –2

NAME ______________________________ DATE ______________ PERIOD ________

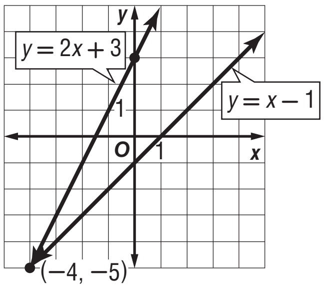
Lesson 7 Reteach

Solve Systems of Equations by Graphing

Example

Solve the system $y = 2x + 3$ and $y = x - 1$ by graphing.

Graph each equation on the same coordinate plane.



The graphs appear to intersect at $(-4, -5)$.

Check this estimate by replacing x with -4 and y with -5.

Check

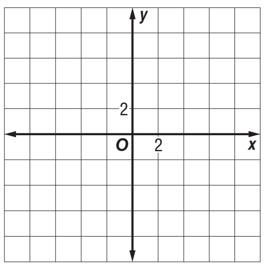
$$y = 2x + 3 \qquad\qquad y = x - 1$$
$$-5 \stackrel{?}{=} 2(-4) + 3 \qquad\qquad -5 \stackrel{?}{=} -4 - 1$$
$$-5 = -5 \checkmark \qquad\qquad -5 = -5 \checkmark$$

The solution of the system is $(-4, -5)$.

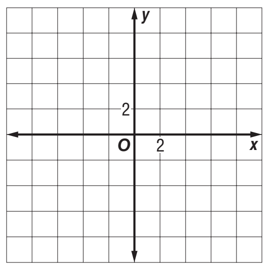
Exercises

Solve each system of equations by graphing.

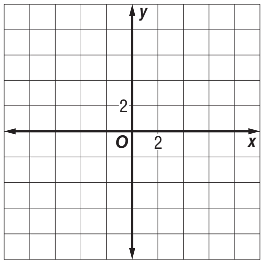
1. $y = 2x + 5$
$y = -x + 8$



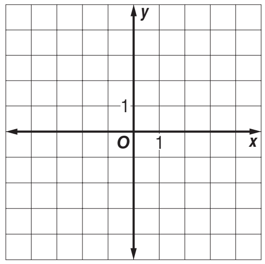
2. $y = -x - 3$
$y = x + 1$



3. $y = -3x + 9$
$y = -3x + 3$



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



NAME ______________________________ DATE ____________ PERIOD ________

Lesson 8 Reteach

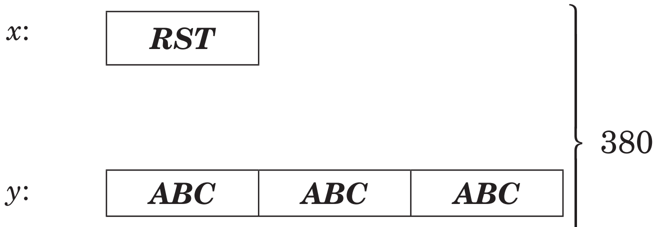
Solve Systems of Equations Algebraically

Example

You own three times as many shares of *ABC* stock as you do of *RST* stock. Altogether you have 380 shares of stock.

a. Write a system of equations to represent this situation.

Draw a bar diagram.



Use the diagram to write the system.

$y = 3x$ There are 3 times as many shares *ABC* stocks as *RST* stocks.

$x + y = 380$ The total number of stocks owned is 380.

b. Solve the system algebraically. Interpret the solution.

Since y is equal to $3x$, you can replace y with $3x$ in the second equation.

$x + y = 380$ Write the equation.

$x + 3x = 380$ Replace y with $3x$.

$4x = 380$ Simplify.

$\frac{4x}{4} = \frac{380}{4}$ Division Property of Equality

$x = 95$ Simplify.

Since $x = 95$ and $y = 3x$, then $y = 285$ when $x = 95$. The solution of this system of equations is (95, 285). This means that you own 95 shares of *RST* stock and 285 shares of *ABC* stock.

Exercises

Solve each system of equations algebraically.

1. $y = x + 3$
$y = 4x$

2. $y = -x - 2$
$y = -2x$

3. $y = x + 14$
$y = 8x$

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

5. $y = -x + 8$
$y = 3x$

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

Lesson 1 Reteach

Representing Relationships

Example 1

MONEY Malik earns $8.50 per hour washing cars. Write an equation to find how much money *m* Malik earns for any number of hours *h*.

Let m represent the money earned and h represent the number of hours worked.

The equation is $m = 8.5h$.

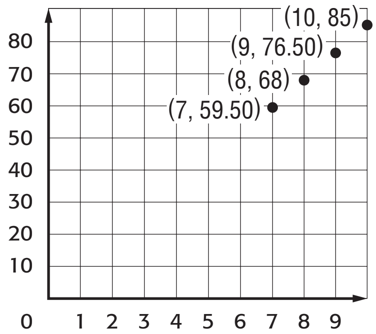
How much will Malik earn if he works 4 hours?

$m = 8.5h$	Write the equation.
$m = 8.5(4)$	Replace h with 4.
$m = 34$	Multiply.

Make a table to find his earnings if he works 7, 8, 9, or 10 hours. Then graph the ordered pairs.

Hours, *h*	Earnings, *m*
7	59.50
8	68.00
9	76.50
10	85.00

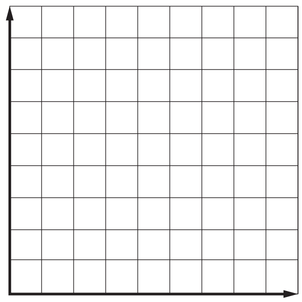
+ 8.50
+ 8.50
+ 8.50



Exercises

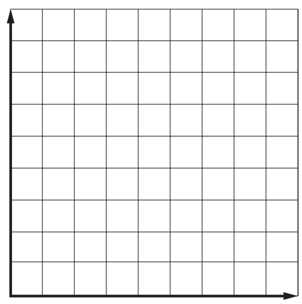
1. **CARS** A car dealer sells 12 cars per week.
   a. Write an equation to find the number of new cars c sold in any number of weeks w.
   b. Make a table to find the number of new cars sold in 4, 5, 6, or 7 weeks. Then graph the ordered pairs.

Weeks, *w*	Cars, *c*



2. **WRITING** An author writes four pages per day.
   a. Write an equation to find the number of pages p written after any number of days d.
   b. Make a table to find the number of pages the author writes in 1, 2, 3, or 4 days. Then graph the ordered pairs.

Days, *d*	Pages, *p*



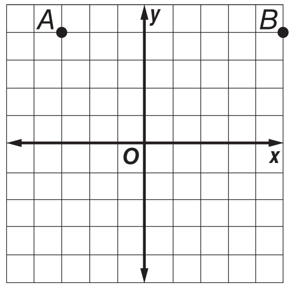
NAME ______________________________ DATE ____________ PERIOD ________

Lesson 2 Reteach

Relations

Example 1

Name the ordered pair for point *A*.



- Start at the origin.
- Move left on the x-axis to find the x-coordinate of point A, which is -3.
- Move up the y-axis to find the y-coordinate, which is 4.

So, the ordered pair for point A is $(-3, 4)$.

Example 2

Graph point *B* at (5, 4).

- Use the coordinate plane shown above. Start at the origin and move 5 units to the right. Then move up 4 units.
- Draw a dot and label it $B(5, 4)$.

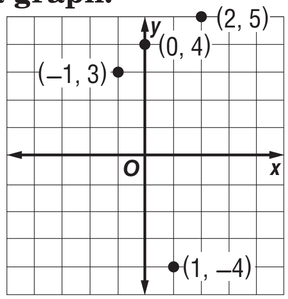
Example 3

Express the relation {(2, 5), (−1, 3), (0, 4), (1, −4)} as a table and a graph. Then state the domain and range.

The domain is $\{-1, 0, 1, 2\}$.

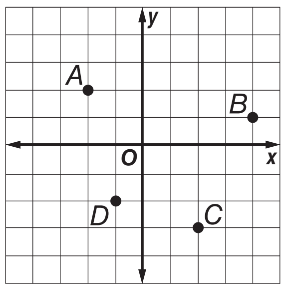
The range is $\{-4, 3, 4, 5\}$.

x	y
2	5
−1	3
0	4
1	−4



Exercises

Name the ordered pair for each point.



1. *A*

2. *B*

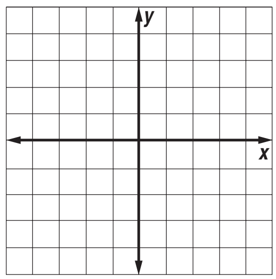
3. *C*

4. *D*

Express the relation as a table and a graph. Then state the domain and range.

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

x	y



Lesson 3 Reteach

Functions

A **function** is a relation in which each member of the domain (input value) is paired with exactly one member of the range (output value). You can organize the input, rule, and output of a function using a function table.

Example 1

Choose four values for x to make a function table for $f(x) = 2x + 4$. Then state the domain and range of the function.

Substitute each domain value x, into the function rule. Then simplify to find the range value.

$f(x) = 2x + 4$

$f(-1) = 2(-1) + 4$ or 2

$f(0) = 2(0) + 4$ or 4

$f(1) = 2(1) + 4$ or 6

$f(2) = 2(2) + 4$ or 8

Input, x	Rule, $2x + 4$	Output, $f(x)$
-1	$2(-1) + 4$	2
0	$2(0) + 4$	4
1	$2(1) + 4$	6
2	$2(2) + 4$	8

The domain is $\{-1, 0, 1, 2\}$. The range is $\{2, 4, 6, 8\}$.

Exercises

Find each function value.

1. $f(1)$ if $f(x) = x + 3$

2. $f(6)$ if $f(x) = 2x$

3. $f(4)$ if $f(x) = 5x - 4$

4. $f(9)$ if $f(x) = -3x + 10$

5. $f(-2)$ if $f(x) = 4x - 1$

6. $f(-5)$ if $f(x) = -2x + 8$

Choose four values for x to make a function table for each function. Then state the domain and range of the function.

7. $f(x) = x - 10$

x	$x - 10$	$f(x)$

8. $f(x) = 2x + 6$

x	$2x + 6$	$f(x)$

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

x	$2 - 3x$	$f(x)$

NAME ______________________________ DATE ______________ PERIOD ________

Lesson 4 Reteach

Linear Functions

A function in which the graph of the solutions forms a line is called a **linear function**. A linear function can be represented by an equation, a table, a set of ordered pairs, or a graph.

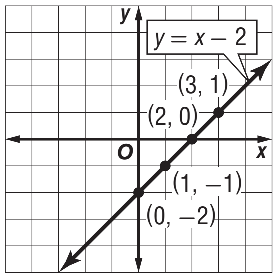
Example 1

Graph $y = x - 2$.

Step 1 Choose some values for x. Use these values to make a function table.

x	$x - 2$	y	(x, y)
0	0 − 2	−2	(0, −2)
1	1 − 2	−1	(1, −1)
2	2 − 2	0	(2, 0)
3	3 − 2	1	(3, 1)

Step 2 Graph each ordered pair on a coordinate plane. Draw a line that passes through the points. The line is the graph of the linear function.

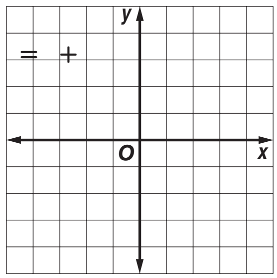


Exercises

Complete the function table. Then graph the function.

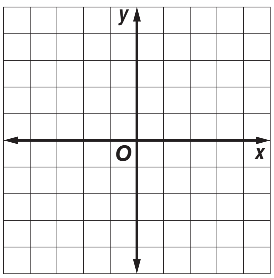
1. $y = x + 3$

x	$x + 3$	y	(x, y)
−2			
0			
1			
2			

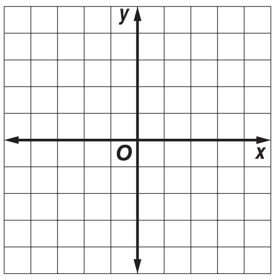


Graph each function.

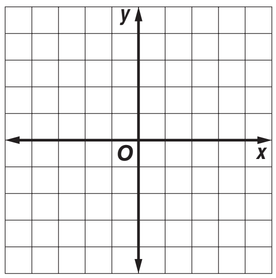
2. $y = 3x + 2$



3. $y = 2 - x$



4. $y = 3x - 1$



Determine whether each set of data is continuous or discrete.

5. the size of airmail packages

6. the number of boxes in an airmail shipment

NAME ______________________________ DATE ______________ PERIOD ________

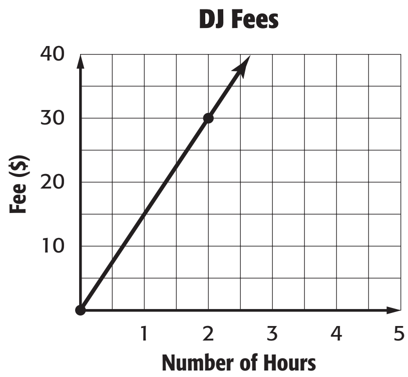
Lesson 5 Reteach

Construct Functions

The *initial value of a function* is the corresponding *y*-value when *x* equals 0. You can find the initial value of a function from tables, graphs, and words.

Example 1

The Student Council is hiring a DJ for the school dance. The first DJ charges $25 an hour. The second DJ's fees areshown in the graph. Compare the functions for each DJ by comparing the fees.



Compare the rates of change.

The first DJ charges $25 an hour. To find the second DJ's fees, choose two points on the line and find the rate of change between them.

$$\frac{\text{Change in hours}}{\text{Change in fee}} = \frac{3-0}{2-0} \text{ or } 15$$

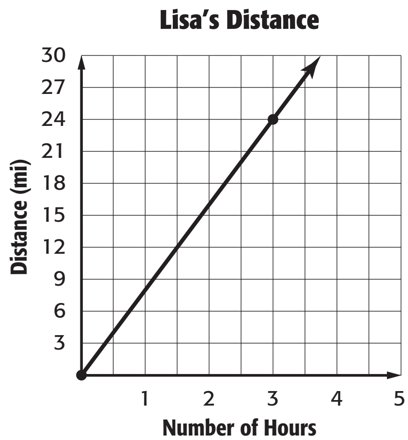
The second DJ charges $15 per hour. Since $15 < 25$, the second DJ charges less per hour than the first DJ.

Exercises

1. Melanie charges $7.50 an hour to babysit. The table shows how much Luisa charges for babysitting. Compare the functions by comparing their rates of change.

Number of Hours	Cost of Babysitting ($)
1	8
2	16
3	24

2. Tom and Lisa each spent an afternoon biking on neighborhood trails. The distance y Tom traveled can be represented by the function $y = 11x$. The graph shows Lisa's distance.



NAME ______________________________ DATE ______________ PERIOD ________

Lesson 6 Reteach

Construct Functions

The *initial value of a function* is the corresponding y-value when x equals 0. You can find the initial value of a function from graphs, words, and tables.

Example 1

A football club is hiring a painter to paint a mural on the concession stand wall. The painter charges an initial fee plus $25 an hour. After 12 hours of work, the football club owed $350. Assume the relationship is linear. Find and interpret the rate of change and initial value.

Since the painter charges $25 an hour, the rate of change is 25. To find the initial value, use slope-intercept form to find the y-intercept.

$y = mx + b$	Slope-intercept form
$y = 25x + b$	Replace m with the rate of change, 25.
$350 = 25(12) + b$	Replace y with 350 and x with 12.
$50 = b$	Solve for b.

The y-intercept is 50. So, the initial fee is $50.

Exercises

1. While hiking, Devon's altitude rose 10 feet for every 5 minutes. After an hour of hiking, his altitude was 295 feet. Assume the relationship is linear. Find and interpret the rate of change and initial value.

2. A frozen dessert was placed in a freezer. Each hour, the temperature dropped 13 degrees. Three hours later, the temperature was 32ºF. Assume the relationship is linear. Find and interpret the rate of change and initial value.

3. Tyler charges his customers a weekly fee plus $5 every time he walks their dogs. One week, he charged a customer $25 for walking their dog 3 times. Assume the relationship is linear. Find and interpret the rate of change and initial value.

NAME ______________________________ DATE ____________ PERIOD ________

Lesson 7 Reteach

Linear and Nonlinear Functions

Linear functions represent constant rates of change. The rate of change for nonlinear functions is not constant. That is, the values do not increase or decrease at the same rate. You can use a table to determine if the rate of change is constant.

Example 1

Determine whether the table represents a *linear* or a *nonlinear* function. Explain.

+2 +2 +2

x	3	5	7	9
y	7	10	13	16

+3 +3 +3

As x increases by 2, y increases by 3. The rate of change is constant, so this function is linear.

Example 2

Determine whether the table represents a *linear* or a *nonlinear* function. Explain.

+1 +1 +1

x	1	2	3	4
y	−3	−6	−10	−15

−3 −4 −5

As x increases by 1, y decreases by a different amount each time. The rate of change is not constant, so this function is nonlinear.

Exercises

Determine whether each table represents a *linear* or a *nonlinear* function. Explain.

1.

x	3	5	7	9
y	7	9	11	13

2.

x	1	5	9	13
y	0	6	8	9

3.

x	3	6	9	12
y	2	3	4	5

4.

x	−2	−3	−4	−5
y	−1	−5	9	8

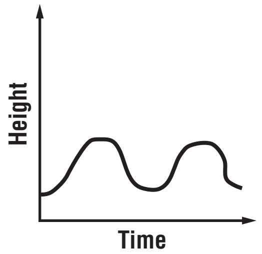
Lesson 9 Reteach

Qualitative Graphs

Qualitative graphs are graphs used to represent situations that may not have numerical values or graphs in which numerical values are not included.

Example 1

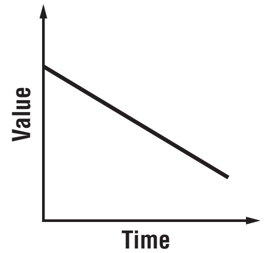
The graph below displays the height of a swing set as a child is swinging. Describe the change in the height over time.



Sample answer: The child starts seated a little above ground. He swings up, then down, then up and down again.

Example 2

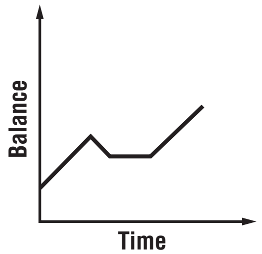
The graph below displays the value of a car after it is purchased. Describe the change in value over time.



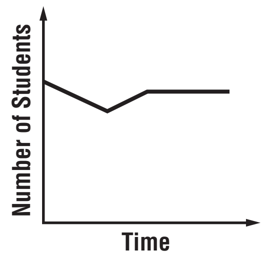
Sample answer: The car's value is the greatest after it is first purchased and then declines steadily over time.

Exercises

1. The graph below shows the activity for Madison's savings account. Describe the change in the balance over time.



2. The graph below shows the number of students enrolled at Edison Junior High School over time. Describe the change in number of students over time.



NAME ______________________________ DATE ______________ PERIOD ________

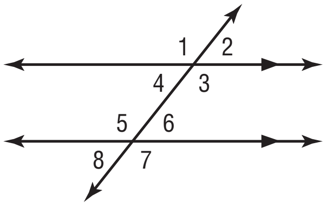
Lesson 1 Reteach

Lines

- **Perpendicular lines** are lines that intersect at right angles.
- **Parallel lines** are two lines in a plane that never intersect or cross.
- A line that intersects two or more other lines is called a **transversal.**
- If the two lines cut by a transversal are parallel, then these special pairs of angles are congruent: ***alternate interior angles, alternate exterior angles, and corresponding angles.***

Example 1

Classify ∠4 and ∠8 as *alternate interior*, *alternate exterior*, or *corresponding*.



∠4 and ∠8 are in the same position in relation to the transversal on the two lines. They are corresponding angles.

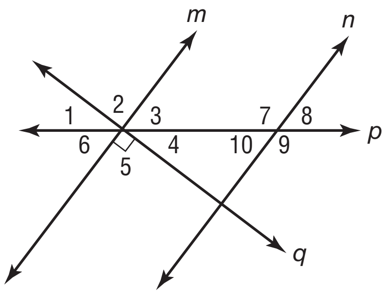
Example 2

Refer to the figure in Example 1. Find *m*∠2 if *m*∠8 = 58°.

Since ∠2 and ∠8 are alternate exterior angles, $m\angle 2 = 58°$

Exercises

In the figure at the right, line *m* and line *n* are parallel. If *m*∠3 = 64°, find each given angle measure. Justify each answer.



1. $m\angle 8$

2. $m\angle 10$

3. $m\angle 4$

4. $m\angle 6$

NAME ______________________________ DATE ______________ PERIOD ________

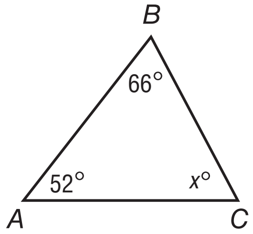
Lesson 3 Reteach

Angles of Triangles

- A **triangle** is formed by three line segments that intersect only at their endpoints.
- A point where the segments intersect is a **vertex** of the triangle.
- Every triangle also has three angles. The sum of the measures of the angles is 180˚.

Example 1

Find the value of x in $\triangle ABC$.



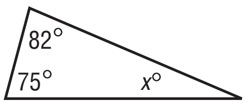
$$\begin{aligned} x + 66 + 52 &= 180 && \text{The sum of the measures is 180.} \\ x + 118 &= 180 && \text{Simplify.} \\ -118\ \ -118 & && \text{Subtract 118 from each side.} \\ \hline x &= 62 \end{aligned}$$

The value of x is 62.

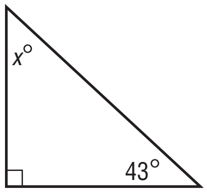
Exercises

Find the the value of x in each triangle.

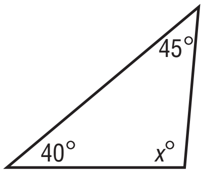
1.



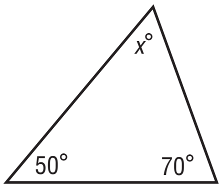
2.



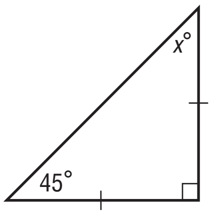
3.



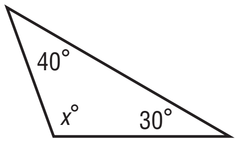
4.



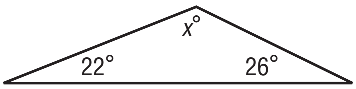
5.



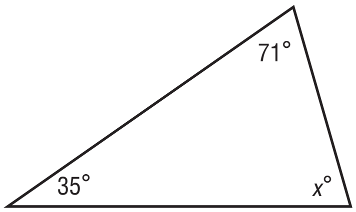
6.



7.



8.



9.