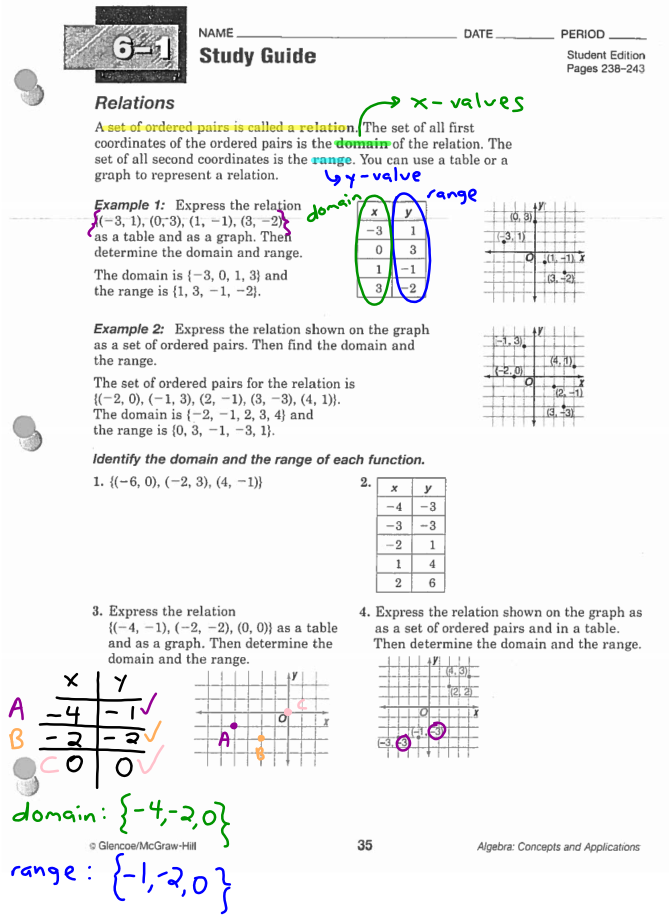

6-1

NAME ______________ DATE ________ PERIOD ______

Study Guide

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Relations

A set of ordered pairs is called a relation. The set of all first coordinates of the ordered pairs is the domain of the relation. The set of all second coordinates is the range. You can use a table or a graph to represent a relation.

x- values

y-value

Example 1: Express the relation {(−3, 1), (0, 3), (1, −1), (3, −2)} as a table and as a graph. Then determine the domain and range.

domain range

x	y
−3	1
0	3
1	−1
3	−2

The domain is {−3, 0, 1, 3} and the range is {1, 3, −1, −2}.

Example 2: Express the relation shown on the graph as a set of ordered pairs. Then find the domain and the range.

The set of ordered pairs for the relation is {(−2, 0), (−1, 3), (2, −1), (3, −3), (4, 1)}. The domain is {−2, −1, 2, 3, 4} and the range is {0, 3, −1, −3, 1}.

Identify the domain and the range of each function.

1. {(−6, 0), (−2, 3), (4, −1)}

2.

x	y
−4	−3
−3	−3
−2	1
1	4
2	6

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

	x	y
A	−4	−1 ✓
B	−2	−2 ✓
C	0	0 ✓

domain: {−4, −2, 0}

range: {−1, −2, 0}

4. Express the relation shown on the graph as a set of ordered pairs and in a table. Then determine the domain and the range.

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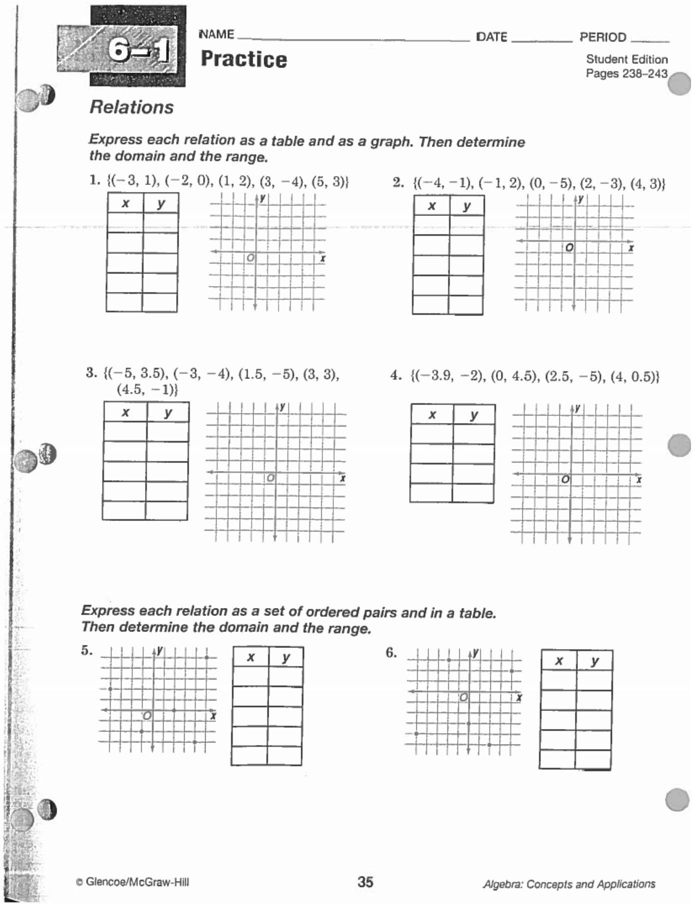

6-1

NAME ______________ DATE ________ PERIOD ______

Practice

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Pages 238–243

Relations

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

1. {(−3, 1), (−2, 0), (1, 2), (3, −4), (5, 3)}

x	y

2. {(−4, −1), (−1, 2), (0, −5), (2, −3), (4, 3)}

x	y

3. {(−5, 3.5), (−3, −4), (1.5, −5), (3, 3), (4.5, −1)}

x	y

4. {(−3.9, −2), (0, 4.5), (2.5, −5), (4, 0.5)}

x	y

Express each relation as a set of ordered pairs and in a table. Then determine the domain and the range.

5.

x	y

6.

x	y

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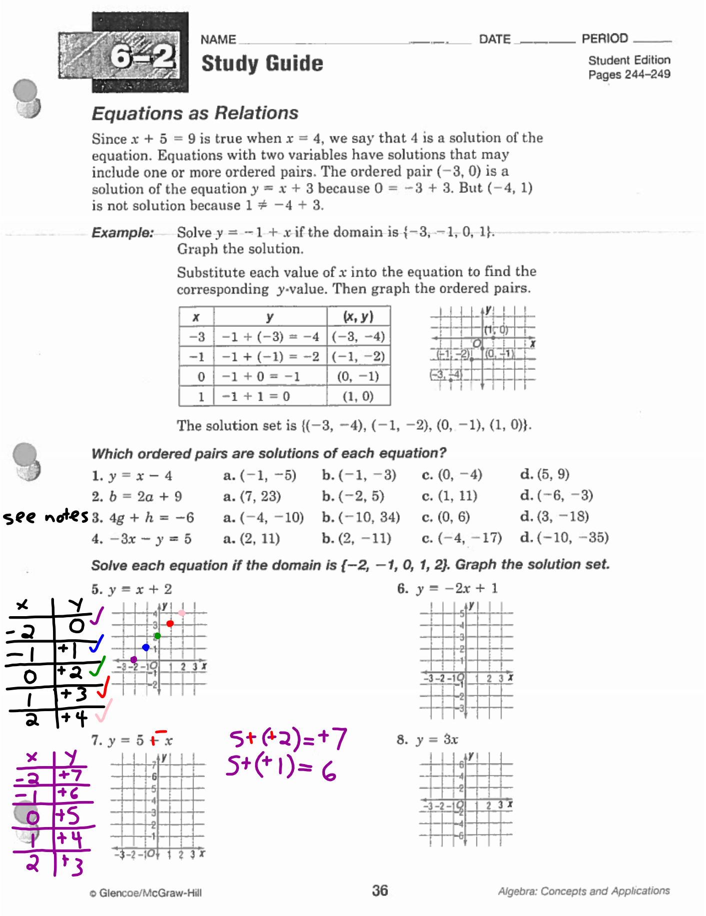

6-2

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Study Guide

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Equations as Relations

Since $x + 5 = 9$ is true when $x = 4$, we say that 4 is a solution of the equation. Equations with two variables have solutions that may include one or more ordered pairs. The ordered pair $(-3, 0)$ is a solution of the equation $y = x + 3$ because $0 = -3 + 3$. But $(-4, 1)$ is not solution because $1 \neq -4 + 3$.

Example: Solve $y = -1 + x$ if the domain is $\{-3, -1, 0, 1\}$. Graph the solution.

Substitute each value of x into the equation to find the corresponding y-value. Then graph the ordered pairs.

x	y	(x, y)
−3	$-1 + (-3) = -4$	(−3, −4)
−1	$-1 + (-1) = -2$	(−1, −2)
0	$-1 + 0 = -1$	(0, −1)
1	$-1 + 1 = 0$	(1, 0)

The solution set is $\{(-3, -4), (-1, -2), (0, -1), (1, 0)\}$.

Which ordered pairs are solutions of each equation?

1. $y = x - 4$ a. (−1, −5) b. (−1, −3) c. (0, −4) d. (5, 9)
2. $b = 2a + 9$ a. (7, 23) b. (−2, 5) c. (1, 11) d. (−6, −3)

see notes 3. $4g + h = -6$ a. (−4, −10) b. (−10, 34) c. (0, 6) d. (3, −18)

4. $-3x - y = 5$ a. (2, 11) b. (2, −11) c. (−4, −17) d. (−10, −35)

Solve each equation if the domain is {−2, −1, 0, 1, 2}. Graph the solution set.

5. $y = x + 2$

x	y
−2	0 ✓
−1	+1 ✓
0	+2 ✓
1	+3 ✓
2	+4 ✓

6. $y = -2x + 1$

7. $y = 5 \overset{-}{+} x$

x	y
−2	+7
−1	+6
0	+5
1	+4
2	+3

$5 + (+2) = +7$
$5 + (+1) = 6$

8. $y = 3x$

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3) $4g + h = -6$

x, y

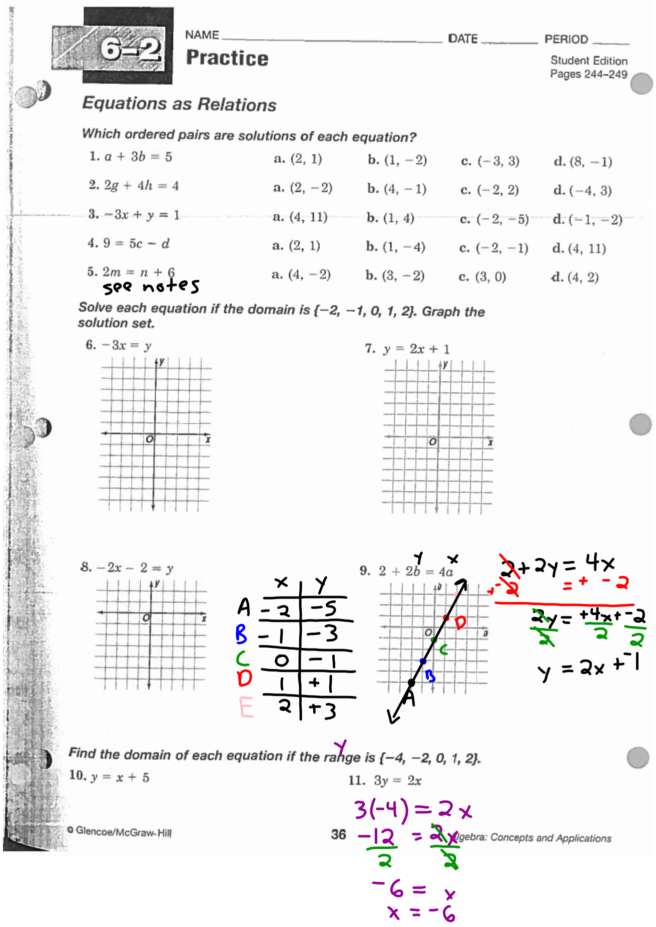
A. $(-4, -10)$

$$\underbrace{4(-4)}_{-16} + (-10) \overset{?}{=} -6$$
$$-16 + -10 \overset{?}{=} -6$$
$$-26 \neq -6$$

$$4(-10) + (-4) \overset{?}{=} -6$$
$$-40 + -4 \overset{?}{=} -6$$
$$-44 \neq -6$$

$\boxed{\text{B. } (-10, 34)}$

$$4(-10) + (+34) \overset{?}{=} -6$$
$$-40 + +34 \overset{?}{=} -6$$
$$-6 = -6 \checkmark$$



6-2 NAME ______________________ DATE ________ PERIOD ______

Practice

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Pages 244–249

Equations as Relations

Which ordered pairs are solutions of each equation?

1. $a + 3b = 5$ a. (2, 1) b. (1, −2) c. (−3, 3) d. (8, −1)
2. $2g + 4h = 4$ a. (2, −2) b. (4, −1) c. (−2, 2) d. (−4, 3)
3. $-3x + y = 1$ a. (4, 11) b. (1, 4) c. (−2, −5) d. (−1, −2)
4. $9 = 5c - d$ a. (2, 1) b. (1, −4) c. (−2, −1) d. (4, 11)
5. $2m = n + 6$ a. (4, −2) b. (3, −2) c. (3, 0) d. (4, 2)

see notes

Solve each equation if the domain is {−2, −1, 0, 1, 2}. Graph the solution set.

6. $-3x = y$

7. $y = 2x + 1$

8. $-2x - 2 = y$

9. $2 + 2\overset{y}{b} = 4\overset{x}{a}$

	x	y
A	−2	−5
B	−1	−3
C	0	−1
D	1	+1
E	2	+3

$\cancel{2} + 2y = 4x$

$+\cancel{-2} \quad = + \; -2$

$\frac{\cancel{2}y}{\cancel{2}} = \frac{+4x}{2} + \frac{-2}{2}$

$y = 2x + {}^{-}1$

Find the domain of each equation if the $\overset{y}{\text{range}}$ *is {−4, −2, 0, 1, 2}.*

10. $y = x + 5$

11. $3y = 2x$

$3(-4) = 2x$

$\frac{-12}{2} = \frac{\cancel{2}x}{\cancel{2}}$

$^{-}6 = x$

$x = {}^{-}6$

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5) $2m = n + 6$

~~A. (4,−2)~~

$2(4) \overset{?}{=} (-2) + 6$

$8 \overset{?}{\neq} +4$

$2(-2) \overset{?}{=} (4) + 6$

$-4 \neq 10$

~~B. (3,−2)~~

$2(3) \overset{?}{=} (-2) + 6$

$6 \overset{?}{\neq} 4$

$2(-2) \overset{?}{=} (+3) + {}^{+}6$

$-4 \neq +9$

C. (3,0)

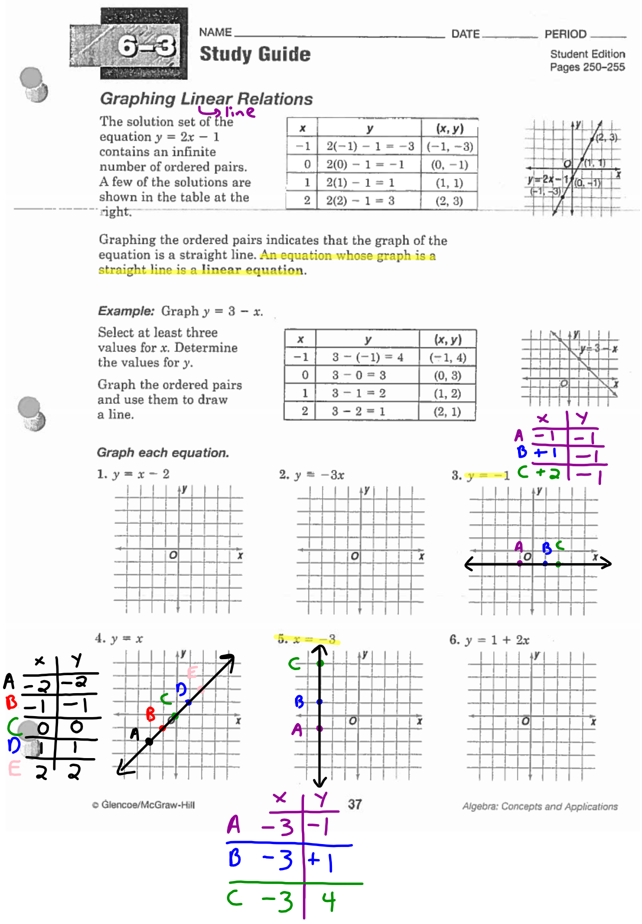
$2(3) \overset{?}{=} (0) + 6$

$+6 = {}^{+}6$ ✓

D. (4,2)

$2(4) \overset{?}{=} (2) + 6$

$8 = 8$ ✓



6–3

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Graphing Linear Relations

line

The solution set of the equation $y = 2x - 1$ contains an infinite number of ordered pairs. A few of the solutions are shown in the table at the right.

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

Graphing the ordered pairs indicates that the graph of the equation is a straight line. An equation whose graph is a straight line is a **linear equation**.

Example: Graph $y = 3 - x$.

Select at least three values for x. Determine the values for y.

Graph the ordered pairs and use them to draw a line.

x	y	(x, y)
-1	$3 - (-1) = 4$	$(-1, 4)$
0	$3 - 0 = 3$	$(0, 3)$
1	$3 - 1 = 2$	$(1, 2)$
2	$3 - 2 = 1$	$(2, 1)$

Graph each equation.

1. $y = x - 2$

2. $y = -3x$

3. $y = -1$

	x	y
A	−1	−1
B	+1	−1
C	+2	−1

4. $y = x$

	x	y
A	−2	−2
B	−1	−1
C	0	0
D	1	1
E	2	2

5. $x = -3$

6. $y = 1 + 2x$

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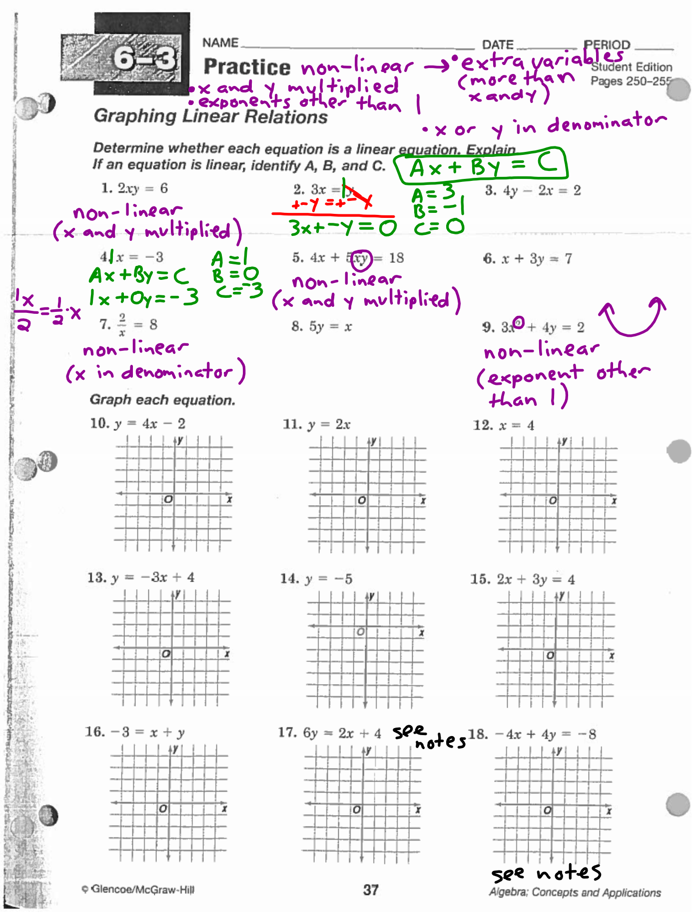
	x	y
A	−3	−1
B	−3	+1
C	−3	4



6–3

NAME ______ DATE ______ PERIOD ______

Practice

non-linear → • extra variables (more than x and y)
• x and y multiplied
• exponents other than 1
• x or y in denominator

Student Edition
Pages 250–255

Graphing Linear Relations

Determine whether each equation is a linear equation. Explain. If an equation is linear, identify A, B, and C.

$\boxed{Ax + By = C}$

1. $2xy = 6$

non-linear
(x and y multiplied)

2. $3x = 1y$

$+-y = +-y$

$3x + -y = 0$

A = 3
B = −1
C = 0

3. $4y - 2x = 2$

4. $1x = -3$

$Ax + By = C$
$1x + 0y = -3$

A = 1
B = 0
C = −3

$\frac{1x}{2} = \frac{1}{2} \cdot x$

5. $4x + 5xy = 18$

non-linear
(x and y multiplied)

6. $x + 3y = 7$

7. $\frac{2}{x} = 8$

non-linear
(x in denominator)

8. $5y = x$

9. $3x^{0} + 4y = 2$

non-linear
(exponent other than 1)

Graph each equation.

10. $y = 4x - 2$

11. $y = 2x$

12. $x = 4$

13. $y = -3x + 4$

14. $y = -5$

15. $2x + 3y = 4$

16. $-3 = x + y$

17. $6y = 2x + 4$ see notes

18. $-4x + 4y = -8$

see notes

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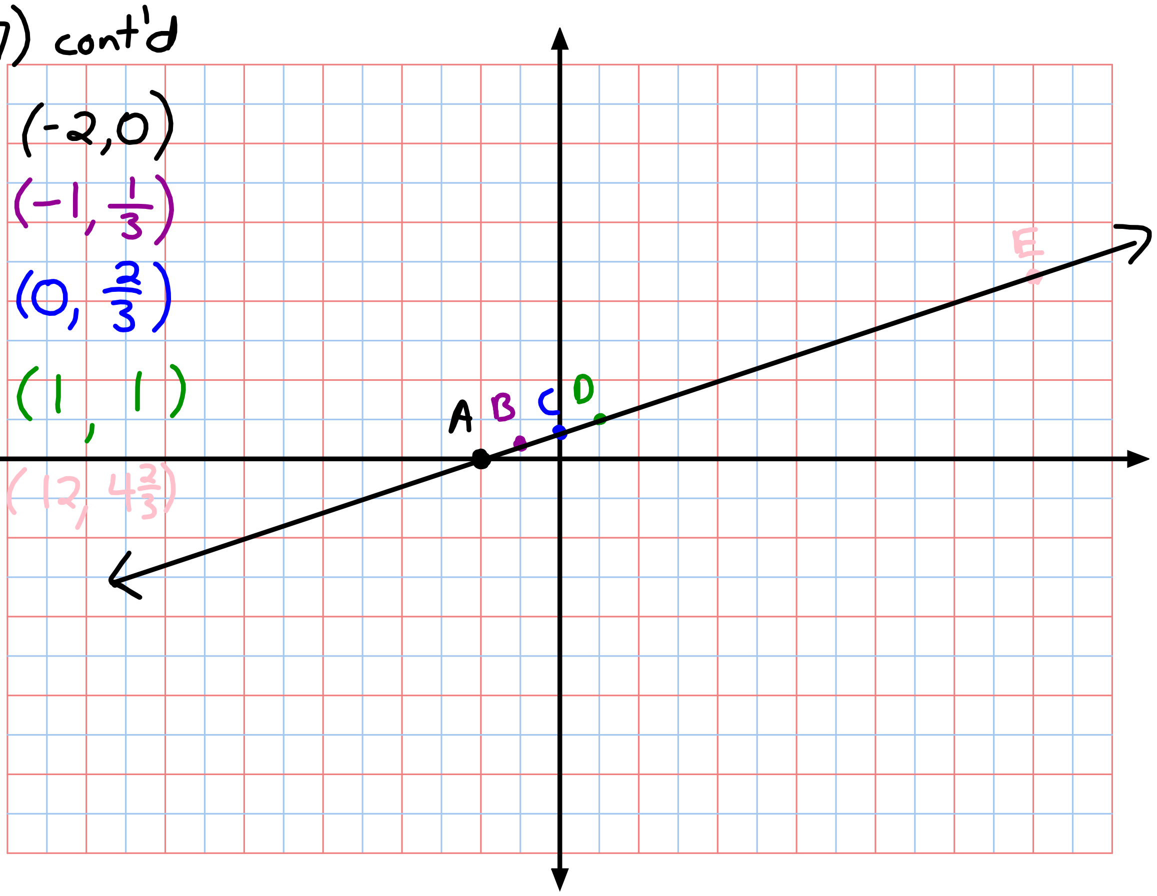
17) $\frac{\cancel{6}y}{\cancel{6}} = \frac{2x}{6} + \frac{4}{6}$

$y = \frac{1}{3}x + \frac{2}{3}$

x	y
-2	0
-1	$+\frac{1}{3}$
0	$\frac{2}{3}$
1	1
12	$4\frac{2}{3}$

17) cont'd

A	(-2,0)
B	$(-1, \frac{1}{3})$
C	$(0, \frac{2}{3})$
D	(1, 1)
E	$(12, 4\frac{2}{3})$



18) $\cancel{-4x} + 4y = -8$

$\cancel{+4x} \qquad = ++4x$

$\frac{\cancel{4}y}{\cancel{4}} = \frac{+4x}{4} + \frac{-8}{4}$

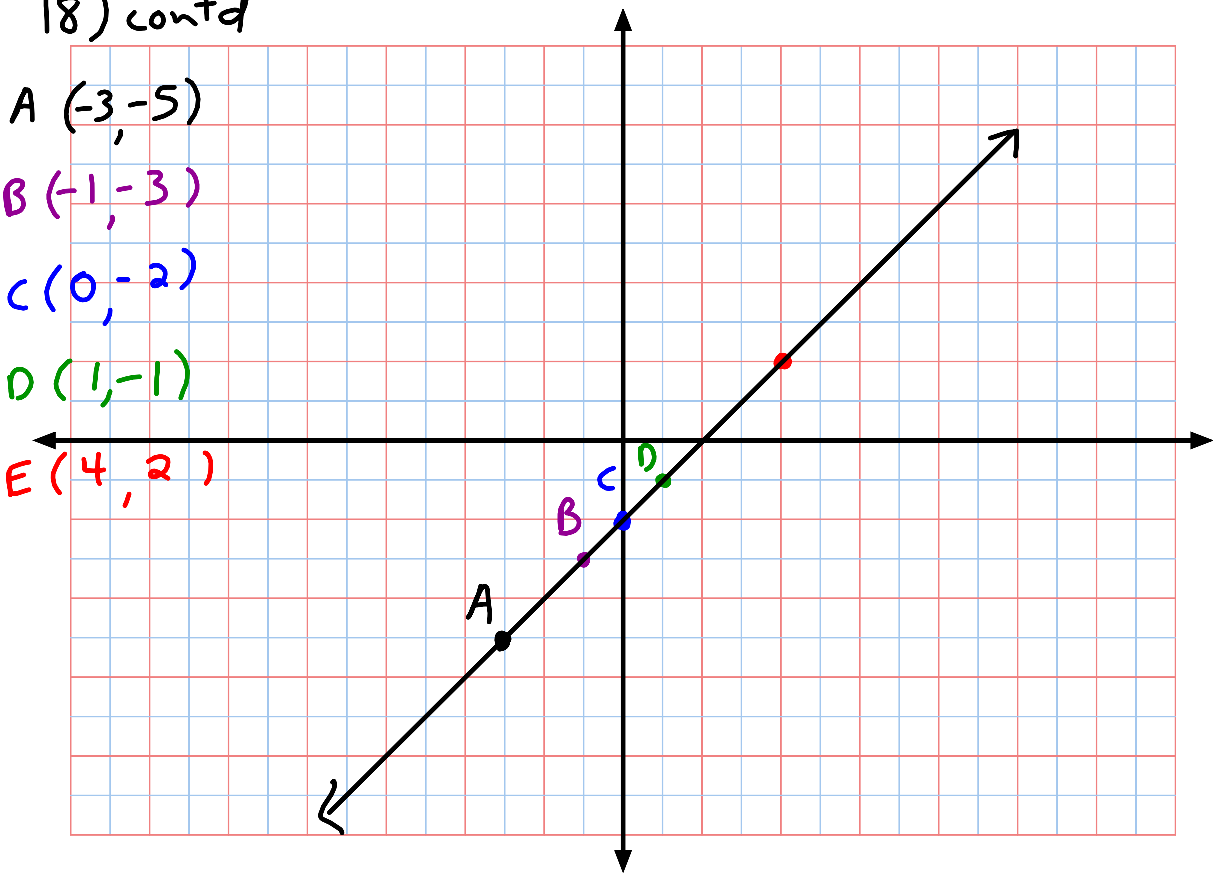
$\boxed{y = x + {}^{-}2}$

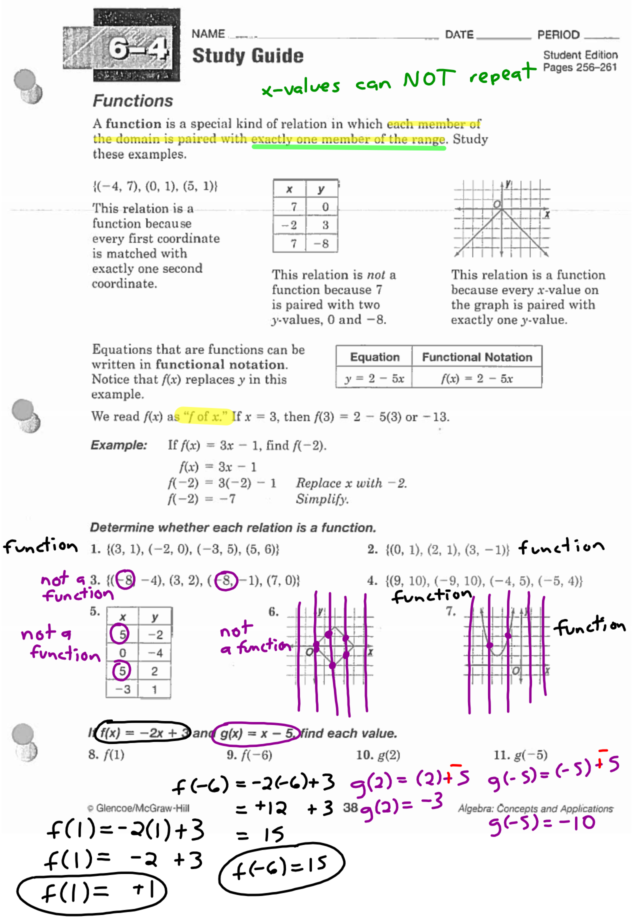
P
E
Ⓜ
D
Ⓐ ✓
S
Start

x	y	
-3	-5	(-3,-5)
-1	-3	(-1,-3)
0	-2	(0,-2)
+1	-1	(+1,-1)
4	+2	(4,2)

18) cont'd

A (-3,-5)
B (-1,-3)
C (0,-2)
D (1,-1)
E (4,2)





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Study Guide

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x-values can NOT repeat

Functions

A **function** is a special kind of relation in which each member of the domain is paired with exactly one member of the range. Study these examples.

{(−4, 7), (0, 1), (5, 1)}

This relation is a function because every first coordinate is matched with exactly one second coordinate.

x	y
7	0
−2	3
7	−8

This relation is *not* a function because 7 is paired with two *y*-values, 0 and −8.

This relation is a function because every *x*-value on the graph is paired with exactly one *y*-value.

Equations that are functions can be written in **functional notation**. Notice that $f(x)$ replaces y in this example.

Equation	Functional Notation
$y = 2 - 5x$	$f(x) = 2 - 5x$

We read $f(x)$ as "*f* of *x*." If $x = 3$, then $f(3) = 2 - 5(3)$ or -13.

Example: If $f(x) = 3x - 1$, find $f(-2)$.

$f(x) = 3x - 1$
$f(-2) = 3(-2) - 1$ *Replace x with −2.*
$f(-2) = -7$ *Simplify.*

Determine whether each relation is a function.

function 1. {(3, 1), (−2, 0), (−3, 5), (5, 6)}

2. {(0, 1), (2, 1), (3, −1)} function

not a function 3. {(−8, −4), (3, 2), (−8, −1), (7, 0)}

4. {(9, 10), (−9, 10), (−4, 5), (−5, 4)} function

5.

x	y
5	−2
0	−4
5	2
−3	1

not a function

6. not a function

7. function

If $f(x) = -2x + 3$ and $g(x) = x - 5$, find each value.

8. $f(1)$
9. $f(-6)$
10. $g(2)$
11. $g(-5)$

$f(1) = -2(1) + 3$
$f(1) = -2 + 3$
$\boxed{f(1) = +1}$

$f(-6) = -2(-6) + 3$
$= +12 + 3$
$= 15$
$\boxed{f(-6) = 15}$

$g(2) = (2) \overset{-}{+} 5$
$g(2) = -3$

$g(-5) = (-5) \overset{-}{+} 5$
$g(-5) = -10$

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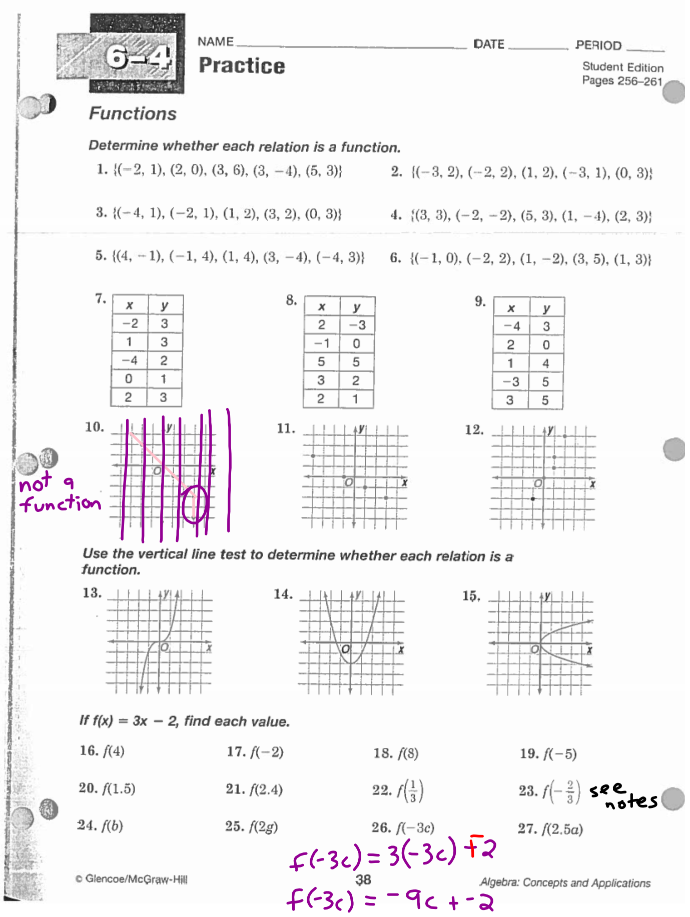

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Practice

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Functions

Determine whether each relation is a function.

1. {(−2, 1), (2, 0), (3, 6), (3, −4), (5, 3)}
2. {(−3, 2), (−2, 2), (1, 2), (−3, 1), (0, 3)}
3. {(−4, 1), (−2, 1), (1, 2), (3, 2), (0, 3)}
4. {(3, 3), (−2, −2), (5, 3), (1, −4), (2, 3)}
5. {(4, −1), (−1, 4), (1, 4), (3, −4), (−4, 3)}
6. {(−1, 0), (−2, 2), (1, −2), (3, 5), (1, 3)}

7.

x	y
−2	3
1	3
−4	2
0	1
2	3

8.

x	y
2	−3
−1	0
5	5
3	2
2	1

9.

x	y
−4	3
2	0
1	4
−3	5
3	5

10. not a function

11.

12.

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

13.

14.

15.

If $f(x) = 3x - 2$, find each value.

16. $f(4)$
17. $f(-2)$
18. $f(8)$
19. $f(-5)$
20. $f(1.5)$
21. $f(2.4)$
22. $f\left(\frac{1}{3}\right)$
23. $f\left(-\frac{2}{3}\right)$ see notes
24. $f(b)$
25. $f(2g)$
26. $f(-3c)$
27. $f(2.5a)$

$f(-3c) = 3(-3c) \overset{-}{+} 2$
$f(-3c) = -9c + -2$

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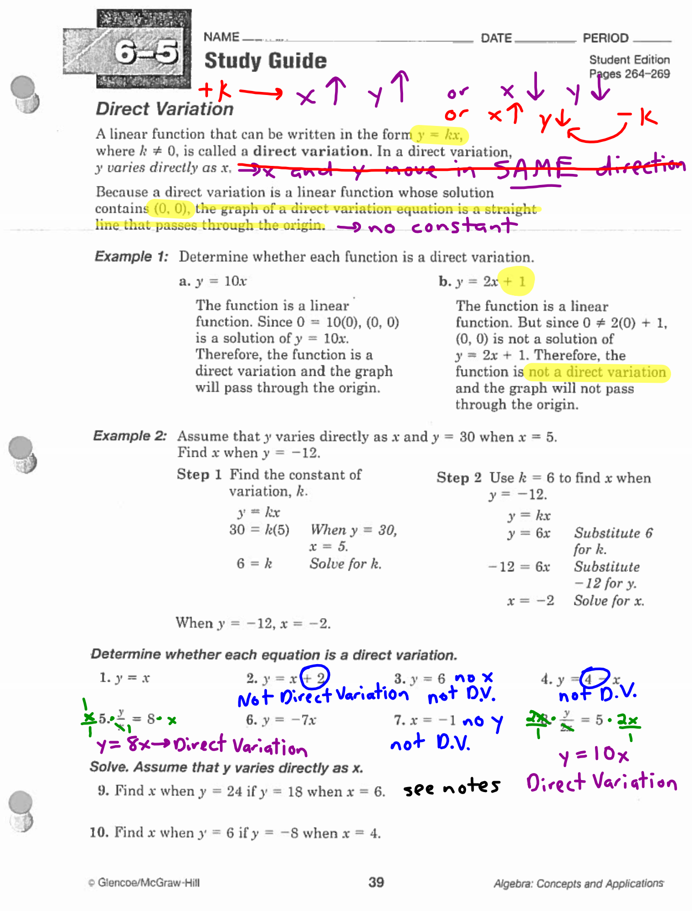
23) $f(x) = 3x + {}^{-}2$

$f\left(\frac{-2}{3}\right) = \cancel{3}^{1}\left(\frac{-2}{\cancel{3}_{1}}\right) + {}^{-}2$

$= -2 \quad + {}^{-}2$

$\boxed{f\left(\frac{-2}{3}\right) = -4}$



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Study Guide

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+k → x↑ y↑ or x↓ y↓
or x↑ y↓ ← −k

Direct Variation

A linear function that can be written in the form $y = kx$, where $k \neq 0$, is called a **direct variation**. In a direct variation, *y varies directly as x.* → x and y move in SAME direction

Because a direct variation is a linear function whose solution contains (0, 0), the graph of a direct variation equation is a straight line that passes through the origin. → no constant

Example 1: Determine whether each function is a direct variation.

a. $y = 10x$

The function is a linear function. Since $0 = 10(0)$, (0, 0) is a solution of $y = 10x$. Therefore, the function is a direct variation and the graph will pass through the origin.

b. $y = 2x + 1$

The function is a linear function. But since $0 \neq 2(0) + 1$, (0, 0) is not a solution of $y = 2x + 1$. Therefore, the function is not a direct variation and the graph will not pass through the origin.

Example 2: Assume that y varies directly as x and $y = 30$ when $x = 5$. Find x when $y = -12$.

Step 1 Find the constant of variation, k.

$y = kx$
$30 = k(5)$ *When $y = 30$, $x = 5$.*
$6 = k$ *Solve for k.*

Step 2 Use $k = 6$ to find x when $y = -12$.

$y = kx$
$y = 6x$ *Substitute 6 for k.*
$-12 = 6x$ *Substitute −12 for y.*
$x = -2$ *Solve for x.*

When $y = -12$, $x = -2$.

Determine whether each equation is a direct variation.

1. $y = x$
2. $y = x + 2$ Not Direct Variation
3. $y = 6$ no x not D.V.
4. $y = 4 - x$ not D.V.
5. $\frac{x}{1} \cdot \frac{y}{\cancel{x}_1} = 8 \cdot x$ $y = 8x \rightarrow$ Direct Variation
6. $y = -7x$
7. $x = -1$ no y not D.V.
8. $\frac{2x}{1} \cdot \frac{y}{\cancel{2x}} = 5 \cdot \frac{2x}{1}$ $y = 10x$ Direct Variation

Solve. Assume that y varies directly as x.

9. Find x when $y = 24$ if $y = 18$ when $x = 6$. see notes

10. Find x when $y = 6$ if $y = -8$ when $x = 4$.

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9) $\begin{cases} y=18 \\ x=6 \end{cases}$ $\begin{cases} y=24 \\ x=? \end{cases}$

$\boxed{y=kx}$

$\frac{18}{6} = \frac{k(\cancel{6})}{\cancel{6}}$

$3 = k$

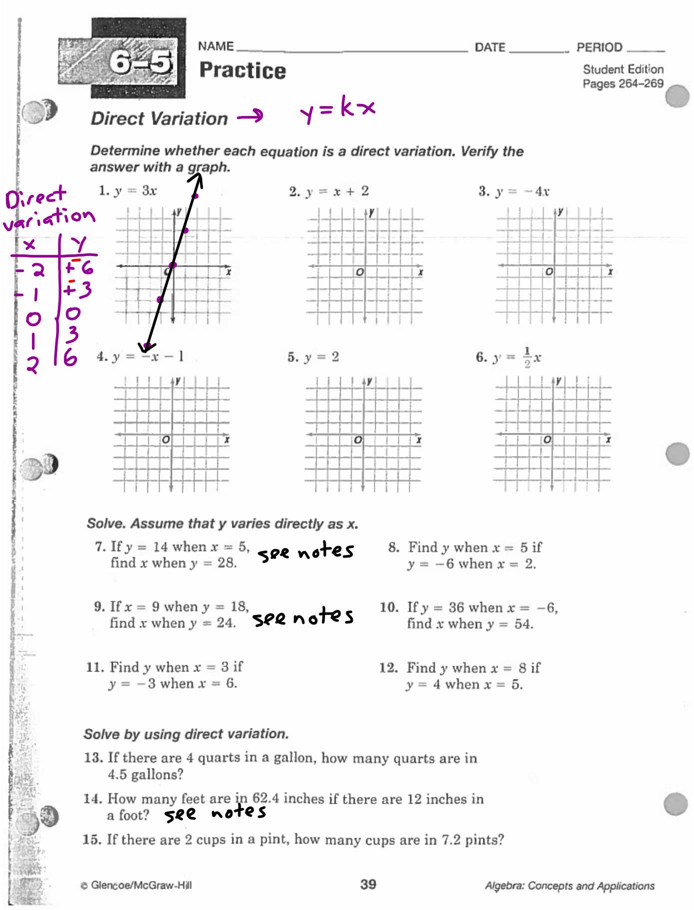
$k = 3$

$y = kx$

$\frac{24}{3} = \frac{\cancel{3}(x)}{\cancel{3}}$

$8 = x$

$\boxed{x = 8}$



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Practice

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Direct Variation → $y=kx$

Determine whether each equation is a direct variation. Verify the answer with a graph.

Direct variation

x	y
-2	$\overset{-}{+}6$
-1	$\overset{-}{+}3$
0	0
1	3
2	6

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

Solve. Assume that y varies directly as x.

7. If $y = 14$ when $x = 5$, find x when $y = 28$. see notes
8. Find y when $x = 5$ if $y = -6$ when $x = 2$.
9. If $x = 9$ when $y = 18$, find x when $y = 24$. see notes
10. If $y = 36$ when $x = -6$, find x when $y = 54$.
11. Find y when $x = 3$ if $y = -3$ when $x = 6$.
12. Find y when $x = 8$ if $y = 4$ when $x = 5$.

Solve by using direct variation.

13. If there are 4 quarts in a gallon, how many quarts are in 4.5 gallons?
14. How many feet are in 62.4 inches if there are 12 inches in a foot? see notes
15. If there are 2 cups in a pint, how many cups are in 7.2 pints?

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7) $\begin{cases} x = 5 \\ y = 14 \end{cases}$ $\quad$ $x = ?$ $\quad$ $y = 28$

$$\frac{5\times 2}{14\times 2} = \frac{x}{28}$$

$$y = kx$$

$$\frac{(14)}{5} = \frac{k(\cancel{5})}{\cancel{5}}$$

$$\boxed{\frac{14}{5} = k}$$

$$y = kx$$

$$28 = \left(\frac{\cancel{14}}{\cancel{5}}\right)\cdot x \cdot \frac{\cancel{5}}{\cancel{14}}$$

$$\frac{5}{\cancel{14}_{1}}\cdot\frac{(\overset{2}{\cancel{28}})}{1} = x$$

$$10 = x$$

$$\boxed{x = 10}$$

9) $\begin{cases} x = 9 \\ y = 18 \end{cases}$ $\quad$ $x = ?$ $\quad$ $\boxed{y = 24}$

direct → $\boxed{y = kx}$

$$\frac{18}{9} = \frac{k\cdot(\cancel{9})}{\cancel{9}}$$

$$2 = k$$

$$\boxed{k = 2}$$

$$y = kx$$

$$\frac{24}{2} = \frac{(\cancel{2})x}{\cancel{2}}$$

$$12 = x$$

$$\boxed{x = 12}$$

14)

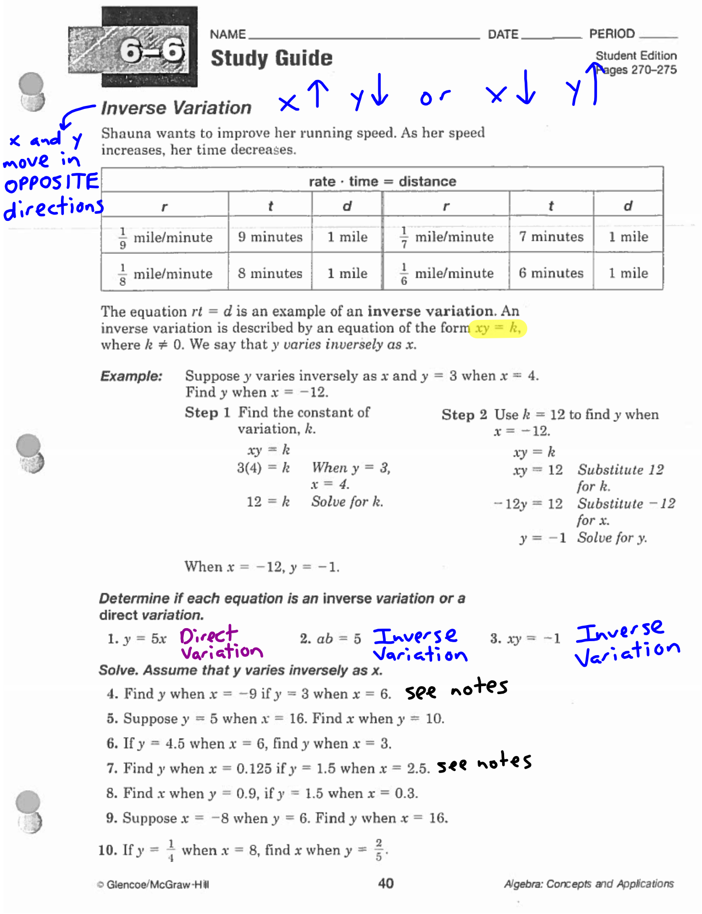
12in = 1 ft
62.4in = ? ft

$$\frac{12 \text{ in}}{1 \text{ ft}} = \frac{62.4 \text{ in}}{x \text{ ft}}$$

$$\frac{\cancel{12}x}{\cancel{12}} = \frac{62.4}{12}$$

$$\boxed{x = 5.2\text{ft}}$$

$$\begin{array}{r} 5.2 \\ 12\overline{)62.4} \\ -60 \\ \hline 24 \\ -24 \\ \hline 0 \end{array}$$



6–6

NAME ______ DATE ______ PERIOD ______

Study Guide

Student Edition
Pages 270–275

Inverse Variation

x↑ y↓ or x↓ y↑

x and y move in OPPOSITE directions

Shauna wants to improve her running speed. As her speed increases, her time decreases.

rate · time = distance					
r	*t*	*d*	*r*	*t*	*d*
$\frac{1}{9}$ mile/minute	9 minutes	1 mile	$\frac{1}{7}$ mile/minute	7 minutes	1 mile
$\frac{1}{8}$ mile/minute	8 minutes	1 mile	$\frac{1}{6}$ mile/minute	6 minutes	1 mile

The equation $rt = d$ is an example of an **inverse variation**. An inverse variation is described by an equation of the form $xy = k$, where $k \neq 0$. We say that *y varies inversely as x*.

Example: Suppose y varies inversely as x and $y = 3$ when $x = 4$. Find y when $x = -12$.

Step 1 Find the constant of variation, k.

$xy = k$
$3(4) = k$ *When $y = 3$, $x = 4$.*
$12 = k$ *Solve for k.*

Step 2 Use $k = 12$ to find y when $x = -12$.

$xy = k$
$xy = 12$ *Substitute 12 for k.*
$-12y = 12$ *Substitute −12 for x.*
$y = -1$ *Solve for y.*

When $x = -12$, $y = -1$.

Determine if each equation is an inverse variation or a direct variation.

1. $y = 5x$ Direct Variation
2. $ab = 5$ Inverse Variation
3. $xy = -1$ Inverse Variation

Solve. Assume that y varies inversely as x.

4. Find y when $x = -9$ if $y = 3$ when $x = 6$. see notes
5. Suppose $y = 5$ when $x = 16$. Find x when $y = 10$.
6. If $y = 4.5$ when $x = 6$, find y when $x = 3$.
7. Find y when $x = 0.125$ if $y = 1.5$ when $x = 2.5$. see notes
8. Find x when $y = 0.9$, if $y = 1.5$ when $x = 0.3$.
9. Suppose $x = -8$ when $y = 6$. Find y when $x = 16$.
10. If $y = \frac{1}{4}$ when $x = 8$, find x when $y = \frac{2}{5}$.

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4) $y=?$ $x=-9$ $y=3$ $x=6$

$$\boxed{xy=k}$$

$$(6)(3)=k$$

$$18=k$$

$$k=18$$

$$xy=k$$

$$\frac{\cancel{(-9)}y}{\cancel{-9}}=\frac{18}{-9}$$

$$\boxed{y=-2}$$

7) $x=0.125$ $y=?$ $x=2.5$ $y=1.5$

Inverse → $xy=k$

$$(2.5)(1.5)=k$$

$$\begin{array}{r} 2.5 \\ \times 1.5 \\ \hline 125 \\ 250 \\ \hline 3.75 \end{array}$$

$$K=3.75$$

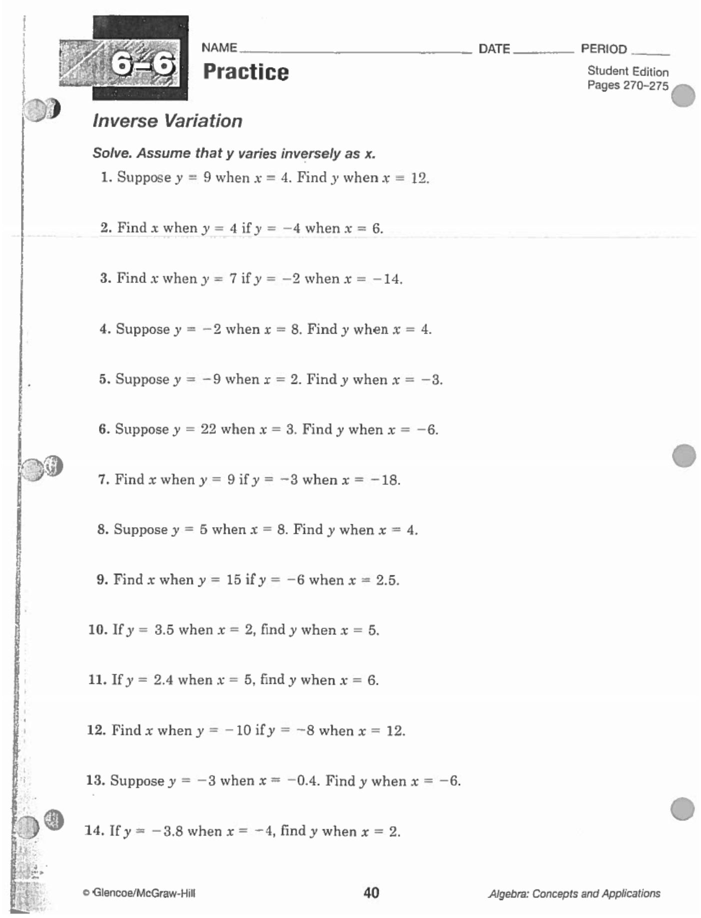
$$xy=k$$

$$\frac{\cancel{0.125}y}{\cancel{0.125}}=\frac{3.75}{0.125}$$

$$y = 0.125\overline{)3.750}$$

$$\begin{array}{r} 30 \\ 125\overline{)3750} \\ -375\downarrow \\ \hline 00 \end{array}$$

$$\boxed{y=30}$$



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Practice

Student Edition
Pages 270–275

Inverse Variation

Solve. Assume that y varies inversely as x.

1. Suppose $y = 9$ when $x = 4$. Find y when $x = 12$.
2. Find x when $y = 4$ if $y = -4$ when $x = 6$.
3. Find x when $y = 7$ if $y = -2$ when $x = -14$.
4. Suppose $y = -2$ when $x = 8$. Find y when $x = 4$.
5. Suppose $y = -9$ when $x = 2$. Find y when $x = -3$.
6. Suppose $y = 22$ when $x = 3$. Find y when $x = -6$.
7. Find x when $y = 9$ if $y = -3$ when $x = -18$.
8. Suppose $y = 5$ when $x = 8$. Find y when $x = 4$.
9. Find x when $y = 15$ if $y = -6$ when $x = 2.5$.
10. If $y = 3.5$ when $x = 2$, find y when $x = 5$.
11. If $y = 2.4$ when $x = 5$, find y when $x = 6$.
12. Find x when $y = -10$ if $y = -8$ when $x = 12$.
13. Suppose $y = -3$ when $x = -0.4$. Find y when $x = -6$.
14. If $y = -3.8$ when $x = -4$, find y when $x = 2$.

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