

3-1 NAME _____ DATE _____ PERIOD _____
Study Guide Student Edition Pages 94-99

Rational Numbers → any number that can be written as a fraction

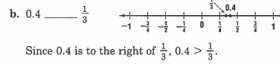
The chart below shows the fraction and decimal forms of some rational numbers.

Rational Number	5	$\frac{1}{6}$	$-\frac{1}{4}$	0.75	-0.833
Fraction Form	$\frac{5}{1}$	$\frac{1}{6}$	$-\frac{1}{4}$	$\frac{3}{4}$	$-\frac{5}{6}$
Decimal Form	5.0	0.166	-2.25	0.75	-0.833

You can compare numbers using a number line or using cross products.

Example: Write <, >, or = in each blank to make a true sentence.

a. $\frac{2}{5}$ _____ $\frac{3}{7}$
 2(7) _____ 3(5) *Cross multiply.*
 14 < 15
 So $\frac{2}{5} < \frac{3}{7}$.



Write <, >, or = in each blank to make a true statement.

1. $\frac{4}{12}$ _____ $\frac{3}{6}$ 2. $\frac{1}{3}$ _____ $\frac{3}{6}$ 3. $\frac{3}{4}$ _____ $\frac{5}{8}$
 4. 0.6 _____ $\frac{2}{3} \approx 0.66...$ 5. 1.5 _____ $1\frac{1}{2}$ 6. $\frac{2}{3}$ _____ $\frac{2}{3}$
 7. $\frac{3}{5}$ _____ $\frac{6}{7}$ 8. 0.63 _____ $\frac{2}{3} \approx 0.66...$ 9. 0.3 _____ $\frac{1}{3}$
 10. -4 _____ $-\frac{8}{2}$ 11. 1.25 _____ $\frac{5}{4}$ 12. 0.445 _____ 0.444

Write the numbers in each set from least to greatest.

13. $\frac{1}{3}, \frac{1}{8}, \frac{1}{2}$ 14. $\frac{3}{8}, 0.4, -\frac{2}{9}$
 15. $\frac{3}{4}, \frac{1}{5}, 0.8$ 16. $-\frac{1}{2}, -\frac{2}{3}, -2$

© Glencoe/McGraw-Hill

$\frac{1 \times 8}{3 \times 8} = \frac{8}{24}$ $\frac{1 \times 3}{8 \times 3} = \frac{3}{24}$ $\frac{1 \times 12}{2 \times 12} = \frac{12}{24}$

$\frac{8}{24}, \frac{3}{24}, \frac{12}{24}$

$\frac{3}{24}, \frac{8}{24}, \frac{12}{24}$

$\frac{1}{8}, \frac{1}{3}, \frac{1}{2}$

3-1 NAME _____ DATE _____ PERIOD _____
Practice Student Edition Pages 94-99

Rational Numbers

Write <, >, or = in each blank to make a true sentence.

1. 2.5 _____ -2 2. -1 _____ 0.5
 3. 0 _____ -1.9 4. -3.6 _____ -3.7
 5. $-7(4)$ _____ $-15 + (-13)$ 6. $-18 + 3$ _____ $5(0)(-3)$
 7. $-5 + 19$ _____ $-2(7)(1)$ 8. $6 - 24$ _____ $-3(2)(-4)$
 9. $\frac{1}{4}$ _____ $\frac{1}{8}$ 10. $-\frac{1}{2}$ _____ $\frac{3}{5}$
 11. $\frac{3}{9}$ _____ $\frac{1}{3}$ 12. $\frac{2}{5}$ _____ $-\frac{5}{10}$
 13. $\frac{3}{8}$ _____ $\frac{2}{6}$ 14. $\frac{4}{5}$ _____ $\frac{3}{4}$
 15. $-\frac{2}{3}$ _____ $-\frac{4}{6}$ 16. $-\frac{1}{5}$ _____ $\frac{2}{10}$

Write the numbers in each set from least to greatest.

17. $\frac{5}{6}, \frac{3}{8}, \frac{1}{3}$ 18. $\frac{2}{5}, 0.3, \frac{6}{8}$
 19. $-\frac{5}{8}, -\frac{3}{4}, -\frac{4}{5}$ 20. $-\frac{2}{3}, -\frac{5}{7}, -\frac{5}{6}$
 21. $\frac{6}{10}, \frac{3}{4}, \frac{4}{6}$ 22. $\frac{4}{10}, \frac{2}{8}, \frac{3}{9}$
 23. $-\frac{2}{4}, -\frac{6}{9}, -\frac{7}{8}$ 24. $\frac{8}{10}, -\frac{5}{6}, -\frac{6}{8}$

see notes

24) $-\frac{5 \times 4}{6 \times 4} - \frac{6 \times 3}{8 \times 3} \frac{8}{10}$ + always bigger than -

$\frac{2 \cdot 6 \cdot 8}{3 \cdot 4} = 24$ $\frac{-20}{24}$ $\frac{-18}{24}$

$-\frac{5}{6}, \frac{-6}{8}, \frac{8}{10}$

3-2 Study Guide NAME _____ DATE _____ PERIOD _____
 Student Edition Pages 100-103

Adding and Subtracting Rational Numbers

During track practice, Sheila recorded the time it took her to run two consecutive miles. She ran the first mile in 7.26 seconds. She ran the second mile in 7.01 seconds. The net change in times from the first mile to the second mile is $7.01 - 7.26$ or -0.25 seconds. Sheila ran the second mile 0.25 seconds faster.

To add and subtract rational numbers, you use the same rules that you learned for adding and subtracting integers.

Adding Rational Numbers	To add rational numbers with the <i>same</i> sign, add their absolute values. Give the result the same sign as the rational numbers. To add rational numbers with <i>different</i> signs, subtract their absolute values. Give the result the same sign as the number with the greater absolute value.
Subtracting Rational Numbers	To subtract a rational number, add its opposite.

Examples: Find each sum or difference.

a. $-7.4 + (-10.3)$
 $= -(|-7.4| + |-10.3|)$
 $= -(7.4 + 10.3)$
 $= -17.7$

b. $-5.2 - 9.1$
 $= -5.2 + (-9.1)$
 $= -14.3$

c. $-8.2 + 5.2 + (-9.1)$
 $= [-8.2 + 5.2] + (-9.1)$
 $= -3 + (-9.1)$
 $= -13 + 9.1$
 $= -12.1$

Find each sum or difference.

1. $3.1 + 1.2$ 2. $-1.4 + 5.6$ 3. $4.2 - 1.7$
 4. $8.4 + 36.8$ 5. $-6.3 + (-0.12)$ *see notes* 13.5 + (-10.2)
 7. $-4.3 - 16.8$ 8. $75.25 - 125.55$ 9. $18.12 - (-5.66)$
 10. $-11.89 + 25.1$ 11. $14.6 + 23.4 + (-3.6)$ 12. $\frac{1}{2} + \frac{1}{3}$ *see notes*
 13. $\frac{2}{3} - \frac{1}{4}$ 14. $\frac{3}{8} + \frac{2}{7}$ *see notes* 15. $-\frac{3}{10} + \frac{3}{4}$

Evaluate each expression if $a = \frac{1}{5}$, $b = -2\frac{1}{2}$, $c = -9.5$, and $d = 15.6$.

16. $a + b$ 17. $c - d$ 18. $d - c$

$(\frac{1}{5}) + (-2\frac{1}{2})$

© Glencoe/McGraw-Hill 15 Algebra: Concepts and Applications

$\frac{2 \cdot 1 \cdot 5}{2 \times 5} = \frac{2 \cdot 5}{10} = 2.5$

$-\frac{1 \times 2}{5 \times 2} = \frac{-2}{10} = -0.2$

$\frac{2 \cdot 3}{10} = 2.3$

$$\begin{array}{r} 5) \quad -6.30 \\ + \quad -0.12 \\ \hline -6.42 \end{array}$$

$$\textcircled{-6.42}$$

$$10) \quad -11.89 + 25.1$$

~~$$\begin{array}{r} -11.89 \\ +25.10 \\ \hline +14.79 \end{array}$$~~

$$\begin{array}{r} 40 \\ 25.10 \\ -11.89 \\ \hline +13.21 \end{array}$$

14)

$$\begin{array}{r} +3 \times 7 \quad 21 \\ \hline 8 \times 7 \quad 56 \\ + \quad +2 \times 8 \quad +16 \\ \hline 7 \times 8 \quad 56 \\ \hline \end{array}$$

$\frac{37}{56}$

$$\frac{1187}{87} = 56$$

3-2

NAME _____ DATE _____ PERIOD _____

Practice

Student Edition
Pages 100-103

Adding and Subtracting Rational Numbers

Find each sum or difference.

- | | |
|--|--|
| 1. $6.2 + (-9.4)$ | 2. $-7.9 + 8.5$ |
| 3. $-2.7 - 3.4$ | 4. $5.6 - 7.1$ |
| 5. $-8.3 + (-4.6)$ | 6. $4.2 - 1.9$ |
| 7. $3.7 + (-5.8)$ | 8. $-1.5 - 2.93$ |
| 9. $6.8 + (-4.6) + 5.3$ | 10. $-4.7 - 8.2 + (-2.5)$ |
| 11. $-\frac{1}{4} - \frac{3}{8}$ | 12. $\frac{1}{3} + (-\frac{5}{9})$ |
| 13. $-3\frac{3}{8} + (-4\frac{1}{2})$ | 14. $-2\frac{2}{3} + 2\frac{1}{2}$ |
| 15. $-7\frac{3}{10} - 2\frac{2}{5}$ | 16. $5\frac{1}{3} + (-3\frac{1}{6})$ |
| 17. $2\frac{5}{6} - 6\frac{1}{2}$ | 18. $-6\frac{1}{5} + 4\frac{7}{10} + (-\frac{3}{5})$
<i>see notes</i> |
| 19. $3\frac{1}{2} + (-5\frac{5}{8}) + 3\frac{3}{4}$ | 20. $2\frac{2}{3} - 9\frac{1}{2} - 8\frac{5}{6}$ |
| 21. Evaluate $m + 4\frac{1}{8}$ if $m = -1\frac{3}{4}$. | |
| 22. Find the value of k if $k = -7\frac{1}{3} - 1\frac{5}{6} + 4\frac{2}{3}$. | |

$$18) -6\frac{1}{5} + 4\frac{7}{10} + -\frac{3}{5}$$

$$-6\frac{1}{5}$$

$$+ -\frac{3}{5}$$

$$\ominus 6\frac{4 \times 2}{5 \times 2} = 6\frac{8}{10}$$

$$+ 4\frac{7 \times 1}{10 \times 1} = 4\frac{7}{10}$$

$$\ominus 2\frac{1}{10}$$

3-3 NAME _____ DATE _____ PERIOD _____
Study Guide Student Edition
 Pages 104-109

Mean, Median, Mode, and Range

For his Social Studies class, Carlos surveyed five gas stations and recorded these prices for 1 gallon of gasoline.

- \$1.32 \$1.28 \$1.43 \$1.32 \$1.30

The mean, the median, the mode, and the range of these prices can all be used to describe the prices.

mean	The mean, or <i>average</i> , of a set of data is the sum of the data divided by the number of pieces of data.
median	The median of a set of data is the middle number when the data in the set are arranged in numerical order . If there are two middle numbers , the median is the mean of those two numbers.
mode	The mode of a set of data is the number that occurs most often in the set. A set can have no mode or more than one mode .
range	The range of a set of data is the difference between the greatest and the least values of the set .

Example: Find the mean, the median, the mode, and the range of the gasoline prices that Carlos recorded.

Find the mean of the data.
 $\frac{1.32 + 1.28 + 1.43 + 1.32 + 1.30}{5} = 1.33$
 The mean is \$1.33.

Find the mode of the data.
 Since \$1.32 occurs most often,
 \$1.32 is the mode.

Find the median of the data.
 First arrange the data in order.
 Then identify the middle number.
 1.28, 1.30, 1.32, 1.32, 1.43
 The median is \$1.32.

Find the range of the data.
 Subtract the greatest and least values.
 $1.43 - 1.28 = \$0.15$
 The range of the data is \$0.15.

Find the mean, median, mode, and range of each set of data.

- 48, 25, 29, 42, 36, 36
- 5.1, 2.7, 2.7, 2.7
- 101, 113, 98
- 18.2, 20.4, 18.2, 11.6, 20.4

3-3

NAME _____ DATE _____ PERIOD _____
Practice
 Student Edition
 Pages 104-109

Mean, Median, Mode, and Range

Find the mean, median, mode, and range of each set of data.

- 33, 41, 17, 25, 62
- 18, 15, 18, 7, 11, 12
- 12, 27, 19, 38, 14, 15, 19, 27, 19, 14
- 7.8, 6.2, 5.4, 5.5, 7.8, 6.1, 5.3
- 13.5, 11.3, 10.7, 15.5, 11.4, 12.6
- 0.7, 0.4, 0.4, 0.7, 0.4, 0.7
- 5, 4.1, 4, 3.3, 2.7, 5.2, 3
- 6.1, 4, 5.3, 6.7, 4, 5.1, 6.7, 4, 9.8, 6.1

9.

Stem	Leaf	Total #s
6	2 3 5 7	9
7	2 7	
8	0 1 1	

 6 | 3 = 63
 median: 72
 mode: 81

10.

Stem	Leaf
3	1 1
4	2 5 6
5	3 3 7
6	2 5

 5 | 3 = 53

11.
 median: $\frac{2+3}{2} = \frac{5}{2} = 2.5$
 mode: 2

12.

© Glencoe/McGraw-Hill

16

3-4

NAME _____ DATE _____ PERIOD _____
Study Guide
 Student Edition
 Pages 112-116

Equations

Jason has won 3 gold medals in swim meets this year. Next Saturday he will swim in 3 events. How many events will he win if he has 5 gold medals at the end of the meet?

Let m = the number of gold medals Jason wins next Saturday. Then the equation $3 + m = 5$ models the number of gold medals Jason will have at the end of the meet. The replacement set for m is $\{1, 2, 3\}$. Since 2 is the only number from the replacement set that makes the equation true, 2 is the solution of the equation.

Example 1: Find the solution of $x + 10 = -21$ if the replacement set is $\{-30, -31, -32\}$.

Find the value in the replacement set that makes the equation true.		
$x + 10 = -21$	$x + 10 = -21$	$x + 10 = -21$
$-30 + 10 = -21$	$-31 + 10 = -21$	$-32 + 10 = -21$
false	true	false

Since -31 makes the equation $x + 10 = -21$ true, the solution is -31.

Sometimes you can solve equations by applying the order of operations.

Example 2: Solve each equation.

a. $b = 27 - 2(3)$ Multiply.
 $b = 27 - 6$ Subtract.
 $b = 21$
 The solution is 21.

b. $\frac{5+1}{8(2)-14} - 8 = h$ Evaluate the fraction.
 $\frac{6}{2} - 8 = h$ Divide.
 $3 - 8 = h$ Subtract.
 $-5 = h$
 The solution is -5.

Find the solution of each equation if the replacement sets are $x = \{1, 2, 3\}$, $y = \{-5, -4, -3\}$, and $z = \{-2, 0, 2\}$.

- $x + 1 = 4$ $x = 3$
- $5 + z = 3$
- $-6 = -3z$
- $7y - 2 = -37$
- $x + 12x = 26$ $x = 2$
- $1 = 7z - (-1)$
- $\frac{y}{5-7} = 2$
- $\frac{10}{x} + x = 7$ $x = 2$
- $8z + 5 = z - 9$

Solve each equation.

- $\frac{49}{7} = g$
- $-6 + 9 = p$
- $n = 5 - 24 + 3$
- $\frac{2 \cdot 4 - 8}{1 - 2} = d$
- $\frac{8-9}{4(6)} = w$ $w = -\frac{1}{20}$
- $s = \frac{4+15+3}{-4(1)+1}$

© Glencoe/McGraw-Hill

Algebra: Concepts and Applications

3-4

NAME _____ DATE _____ PERIOD _____

Practice

Student Edition
Pages 112-116

Equations

Find the solution of each equation if the replacement sets are $a = \{4, 5, 6\}$, $b = \{-2, -1, 0\}$, and $c = \{-1, 0, 1, 2\}$.

- | | |
|------------------------------|-----------------------------|
| 1. $8 = a + 3$ | 2. $b - 3 = -5$ |
| 3. $3c = -3$ | 4. $9 = -a + 13$ |
| 5. $5a + 5 = 35$ | 6. $2c - 4 = 0$ |
| 7. $-4b + (-3) = 1$ | 8. $-9c - 9 = 0$ |
| 9. $\frac{8+17}{5} = -5c$ | 10. $\frac{-9-23}{4} = 4b$ |
| 11. $\frac{11+9}{a} + 2 = 7$ | 12. $\frac{9c}{3} - 5 = -2$ |

Solve each equation.

- | | |
|---------------------------------------|--|
| 13. $q = -9.7 - 0.6$ | 14. $14 - 1.4 = d$ |
| 15. $f = 7 + 6 \cdot 7$ | 16. $b = -5(3) + 4 - 1$ |
| 17. $10 - 8 \cdot 3 \div 3 = w$ | 18. $z = 6(3 - 6 \div 2)$ |
| 19. $-2(-5 + 4 \cdot 3) = h$ | 20. $g = 3(7) - 9 \div 3$ |
| 21. $\frac{6 \cdot 8 - 8}{5} = c$ | 22. $p = \frac{-18 \div 3 + 2}{16 \div 4}$ |
| 23. $\frac{2 \cdot 5 - 8}{9 - 4} = t$ | 24. $\frac{12 - 3 \cdot 2}{32 \div 4} = m$ |

3-5

NAME _____ DATE _____ PERIOD _____

Study Guide

Student Edition
Pages 117-121

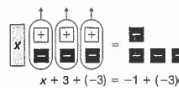
Solving Equations by Using Models

You can use algebra tiles to model and solve equations.

Example: Use algebra tiles to solve $x + 3 = -1$. Model $x + 3 = -1$ by placing 1 x-tile and 3 one-tiles on one side of the mat to represent $x + 3$. Place 1 negative one-tile on the other side of the mat to represent -1 .

To get the x-tile by itself, add 3 negative one-tiles to each side. Then remove the zero pairs.

The x-tile is matched with 4 negative one-tiles. Therefore, $x = -4$.



Solve each equation. Use algebra tiles if necessary.

- | | | |
|--|---|--------------------|
| 1. $y - 4 = 5$
$y = +1$ | 2. $b + 3 = -2$
$b = +1$ | 3. $6 = 4 + a$ |
| 4. $r + (-3) = -5$ | 5. $i = h + 6$ | 6. $8 + m = -6$ |
| 7. $n - (-4) = -3$ | 8. $5 = p - 8$ | 9. $c + 4 = -2$ |
| 10. $-3 = x - 3$ | 11. $k - 2 = -4$ | 12. $7 = x - (-3)$ |

13. Yolanda scored 3 points higher on her math test than she scored on her previous test. If her grade was 83 on this test, what was her score on the previous test?

- Write an equation that can be used to find Yolanda's score on the previous test.
- What was Yolanda's score on the previous test?

3-5

NAME _____ DATE _____ PERIOD _____
Practice
 Student Edition
 Pages 117-121

Solving Equations by Using Models

Solve each equation. Use algebra tiles if necessary.

1. $-5 = h + (-2)$
2. $p + 3 = -1$
3. $m - 6 = -8$
4. $7 + c = 4$
5. $6 = n - 3$
6. $-5 + x = -1$
7. $2 = -8 + w$
8. $b + (-5) = -3$
9. $z + 4 = 9$
10. $3 + y = -3$
11. $a - 4 = 7$
12. $-10 + s = -6$
13. $6 + d = -4$
14. $f + (-1) = 0$
15. $-10 = j - 10$
16. $q + 4 = -5$
17. $6 = 12 + t$
18. $e - 3 = -2$
19. $u + (-7) = 2$
20. $15 + g = 10$
21. $-9 + r = -5$
22. $-8 = l - 4$
23. $v + (-1) = -2$
24. $-3 - i = 2$
25. What is the value of q if $-7 = q + 2$?
26. What is the value of n if $n - 4 = -2$?
27. If $b + (-3) = -5$, what is the value of b ?

3-6

NAME _____ DATE _____ PERIOD _____
Study Guide
 Student Edition
 Pages 122-127

Solving Addition and Subtraction Equations

You can use the addition and subtraction properties of equality to solve equations.

Addition Property of Equality	If you add the same number to each side of an equation, the two sides remain equal. <i>Example:</i> If $x = 5$, then $x + 2 = 5 + 2$.
Subtraction Property of Equality	If you subtract the same number from each side of an equation, the two sides remain equal. <i>Example:</i> If $x = -1$, then $x - 7 = -1 - 7$.

Example: Solve each equation. Check your solution.

a. $b - 3 = -5$

$$b - 3 = -5$$

$$b - 3 + 3 = -5 + 3 \quad \text{Add 3 to each side.}$$

$$b = -2 \quad -3 + 3 = 0$$

Check: $b - 3 = -5$

$$-2 - 3 \stackrel{?}{=} -5 \quad \text{Replace } b \text{ with } -2.$$

$$-5 = -5 \quad \checkmark$$

The solution is -2 .

b. $x + 4 = 1$

$$x + 4 = 1$$

$$x + 4 - 4 = 1 - 4 \quad \text{Subtract 4 from each side.}$$

$$x = -3 \quad 4 - 4 = 0$$

Check: $x + 4 = 1$

$$-3 + 4 \stackrel{?}{=} 1 \quad \text{Replace } x \text{ with } -3.$$

$$1 = 1 \quad \checkmark$$

The solution is -3 .

Solve each equation. Check your solution.

1. $x + 15 = 18$
2. $n - 6 = -9$
3. $p - (-5) = 1$
4. $27 = k + -10$
5. $d + (-16) = 12$
6. $2 + s = -15$
7. $-7 + w = -2$
8. $38 = 11 + v$
9. $-44 = c - 10$
10. $2.7 = x + 5.8$
11. $y - (-6.1) = 20.5$
12. $-9.9 + a = -25$
13. $m + \frac{2}{3} = -\frac{5}{6}$
14. $-\frac{1}{2} = y - \frac{3}{4}$
15. $-a + \frac{1}{4} = \frac{7}{8}$

see notes
 see notes

3-6 Practice

NAME _____ DATE _____ PERIOD _____
Student Edition
Pages 122-127

Solving Addition and Subtraction Equations
Solve each equation. Check your solution.

1. $b + 8 = -9$	2. $s + (-3) = -5$	3. $-4 + q = -11$
4. $23 = m - 11$	5. $k + (-6) = 2$	6. $x - (-9) = 4$
7. $-16 + z = -8$	8. $-5 + c = -5$	9. $14 = f + (-7)$
10. $x + 12 = -1$	11. $15 - w = -4$ <i>see notes</i>	12. $6 = 9 + d$
13. $-31 = 11 + y$	14. $n - (-7) = -1$	15. $a + (-27) = -19$
16. $0 = e - 38$	17. $4.65 + w = 5.95$	18. $g + (-1.54) = 1.07$ <i>see notes</i>
19. $u - 9.8 = 0.3$	20. $7.2 = p - (-6.1)$	21. $\frac{7}{8} + t = \frac{1}{4}$
22. $h - \frac{1}{3} = -\frac{5}{6}$	23. $q + \left(-\frac{2}{8}\right) = \frac{1}{3}$ <i>see notes</i>	24. $\frac{1}{2} + f = -\frac{1}{4}$

© Glencoe/McGraw-Hill 19 Algebra: Concepts and Applications

11) ~~$15 + w = -4$~~
 ~~$+ -15$~~

 $\frac{-15}{-1} = \frac{-19}{-1}$
 $w = 19$

3-7 NAME _____ DATE _____ PERIOD _____
Study Guide Student Edition
 Pages 128-131

Solving Equations Involving Absolute Value

Some equations involve absolute value.

** check your solutions*

Example 1: Solve $|x - 5| = 2$. Check your solution.

$|x - 5| = 2$ means $x - 5 = 2$ or $x - 5 = -2$. Solve both equations.

$$\begin{array}{l} x - 5 = 2 \\ x - 5 + 5 = 2 + 5 \\ x = 7 \end{array} \quad \text{Add 5 to each side.} \quad \begin{array}{l} x - 5 = -2 \\ x - 5 + 5 = -2 + 5 \\ x = 3 \end{array}$$

Check: $|7 - 5| \stackrel{?}{=} 2$
 $|2| \stackrel{?}{=} 2$
 $2 = 2 \checkmark$

Check: $|3 - 5| \stackrel{?}{=} 2$
 $|-2| \stackrel{?}{=} 2$
 $2 = 2 \checkmark$

The solution set is $\{3, 7\}$.

Example 2: Solve $3 + |x| = 8$. Check your solution.

$3 + |x| = 8 - 3$ Simplify by subtracting 3 from each side.

$$\begin{array}{l} |x| = 5 \\ x = -5 \text{ or } 5 \end{array}$$

Check: $3 + |-5| \stackrel{?}{=} 8$
 $3 + 5 \stackrel{?}{=} 8$
 $8 = 8 \checkmark$

Check: $3 + |5| \stackrel{?}{=} 8$
 $3 + 5 \stackrel{?}{=} 8$
 $8 = 8 \checkmark$

The solution set is $\{-5, 5\}$.

Example 3: Solve $|x| - 12 = -16$. Check your solution.

$|x| - 12 + 12 = -16 + 12$ Simplify by adding 12 to each side.

$$|x| = -4$$

This sentence can never be true. The solution is the empty set or \emptyset .

"no solution"

Solve each equation. Check your solution.

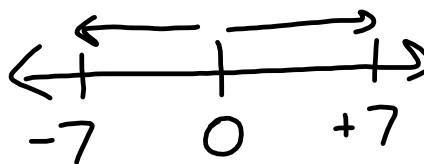
1. $|x| = 7$ *see notes* 2. $|m| = -6$ *see notes* 3. $|x| + 1 = 5$ *see notes*

4. $2 + |z| = 11$ 5. $|d - 2| = 10$ *see notes* 6. $|r + 2| = 0$

7. $|p - 1| = 5$ 8. $|c + 12| = -12$ 9. $|r - (-3)| = 6$ *see notes*

10. Ashley said it was too cold to go snowboarding because the temperature was only 3°F away from 0°F . What are the two possible temperatures?

1) $|x| = 7$
 $x = -7$ or $x = +7$



2) $|m| = -6$



~~$m = 6$~~ \emptyset no solution

$$9) \quad |r + (+3)| = 6$$

$$\begin{array}{l} \cancel{r+3} = +6 \\ \cancel{+3} = +3 \\ \hline r = +3 \quad \checkmark \end{array} \quad \text{or} \quad \begin{array}{l} \cancel{r+3} = -6 \\ \cancel{+3} = +3 \\ \hline r = -9 \quad \checkmark \end{array}$$

3-7 Practice NAME _____ DATE _____ PERIOD _____
 Student Edition
 Pages 128-131

Solving Equations Involving Absolute Value
 Solve each equation. Check your solution.

1. $ x = 7$	2. $ c = -11$
3. $3 + a = 6$	4. $ s - 4 = 2$
5. $ q + 5 = 1$	6. $ h - 5 = 8$
7. $ y + 7 = 9$	8. $-2 = 10 + b $
9. $ p + (-3) = 12$	10. $ w - 1 = 6$
11. $ 4 + r = -3$ see notes	12. $8 = l - 3 $
13. $ n - 5 = 7$	14. $ -2 + f = 1$
15. $9 = e + 8 $	16. $ m - (-3) = 12$
17. $ k + 2 + 3 = 7$	18. $ g - 5 + 8 = 14$ see notes
19. $10 = 4 + v + 1$	20. $ -6 + p + 5 = 19$ see notes

© Glencoe/McGraw-Hill 20 Algebra: Concepts and Applications

