LITTLE ROCK CHRISTIAN ACADEMY

Summer Assignment: Honors Algebra II

Faculty: TBD

Name _____

Chapter 1 is an entire no calculator chapter. As you work through each assignment, please do not use a calculator. The assignment is due on the first full block period, and you will receive a test over chapter 1 on the second full block period. Your Chapter 1 Test will be no calculator. You can use Khan Academy or YouTube as a resource. Mr. Anderson (LRCA math teacher) has created videos for Algebra II that correlate to our textbook. You can search for them at youtube.com/user/AlgebraAnderson/videos. Scroll past all the Geometry videos to find the Algebra videos listed in reverse order by section number.

The Higher Order Thinking (HOT) problems are graded for accuracy.
You may use a calculator for the HOT problems.

Practice 1-1
2-22 even, 23-25

Study Guide and Intervention 1-2
Front 1-20 all
Back 1-17 odd

Study Guide and Intervention 1-3
Front 1-11 odd
Back 1-25 every other odd

Study Guide and Intervention 1-4
Front 1-12 every other odd
Back 1-15 odd

Study Guide and Intervention 1-5
Front 1-9
Back 1-3

Study Guide and Intervention 1-6
Front 1-8
Back 1-10

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Honors Algebra II - Chapter 1 Higher Order Thinking Problems

Short Answer

1. Volleyball: A player's attack percentage A is calculated using the formula $A = \frac{k-e}{t}$, where k represents the number of kills, e represents the number of attack errors including blocks, and t represents the the total attacks attempted. Find the attack percentage given $k = 22$, $e = 11$, and $t = 35$.

2. The area of a triangle can be found using Heron's Formula, $A = \sqrt{s(s-a)(s-b)(s-c)}$, where a, b, and c are the lengths of the three sides of the triangle and s is half of the perimeter. Find the area of the triangle with sides 6 in., 11 in., and 14 in.

3. For any three distinct numbers a, b, and c, $a\$b\$c$ is defined as $a\$b\$c = \frac{-a-b-c}{c-b-a}$. Find $-2\$(-4)\$5$.

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4. Billie is given $20 in lunch money by her parents once every two weeks. On some days, she packs her lunch, and on other days, she buys her lunch. A hot lunch from the cafeteria costs $4.50, and a cold sandwich from the lunch line costs $2.

   a. Billie decides that she wants to buy a hot lunch on Thursday and Friday of the first week and on Wednesday of the second week. Determine how much money that will cost.

   b. How many cold sandwiches can Billie buy with the amount leftover?

   c. Assuming that both weeks are Monday through Friday, how many times will Billie have to pack her lunch?

5. A banquet room can seat a maximum of 69 people. The coach, principal and vice-principal have invited the award-winning girls' tennis team to the banquet. If the tennis team consists of 22 girls, how many guests can each student bring?

6. BONUS: Solve $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$ for y_1.

7. Provide one example of an equation involving the Distributive Property that has no solution and another one that has infinitely many solutions. Show your work to verify the solution.

   a. no solution

   b. infinitely many solutions

8. Most freshwater tropical fish thrive if the water is within $2^{\circ}F$ of $78^{\circ}F$.

   a. Write an equation to determine the least and greatest optimal temperatures.

   b. Solve the equation you wrote in part a.

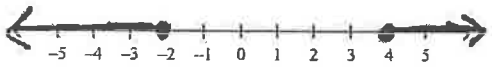
   c. If your acquarium's thermometer is accurate to within plus or minus $1^{\circ}F$, what should the temperature of the water be to ensure that it reaches the minimum temperature? Explain.

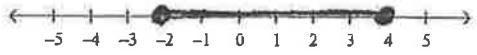
9. Jim is selling advertising space in *Central City Magazine* to local businesses. Jim earns 3% commission for every advertisement he sells plus a salary of $250 per week. If the average amount of money that a business spends on advertising is $500, how many advertisements must he sell each week to make a salary of at least $700 that week?

   a. Write an inequality to describe this situation.

   b. Solve the inequality and interpret the solution.

10. The graphs of the solutions of two different absolute value inequalities are shown. Compare and contrast the absolute value inequalities.





11. Cara is making a beaded necklace for a gift. She wants to spend between $20 and $30 on the necklace. The bead store charges $2.50 for large beads and $1.25 for small beads. If she buys 3 large beads, how many small beads can she buy to stay within her budget? Write and solve a **compound** inequality to describe the range of possible beads.

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1-1 Practice

Expressions and Formulas

Evaluate each expression.

1. $3(4 - 7) - 11$

2. $4(12 - 4^2)$

3. $1 + 2 - 3(4) \div 2$

4. $12 - [20 - 2(6^2 \div 3 \times 2^2)]$

5. $20 \div (5 - 3) + 5^2(3)$

6. $(-2)^3 - (3)(8) + (5)(10)$

7. $18 - \{5 - [34 - (17 - 11)]\}$

8. $[4(5 - 3) - 2(4 - 8)] \div 16$

9. $\frac{1}{2}[6 - 4^2]$

10. $\frac{1}{4}[-5 + 5(-3)]$

11. $\frac{-8(13 - 37)}{6}$

12. $\frac{(-8)^2}{5 - 9} - (-1)^2 + 4(-9)$

Evaluate each expression if $a = \frac{3}{4}$, $b = -8$, $c = -2$, $d = 3$, and $g = \frac{1}{3}$.

13. $ab^2 - d$

14. $(c + d)b$

15. $\frac{ab}{c} + d^2$

16. $\frac{d(b - c)}{ac}$

17. $(b - dg)g^2$

18. $ac^3 - b^2dg$

19. $-b[a + (c - d)^2]$

20. $\frac{ac^4}{d} - \frac{c}{g^2}$

21. $9bc - \frac{1}{g}$

22. $2ab^2 - (d^3 - c)$

23. **TEMPERATURE** The formula $F = \frac{9}{5}C + 32$ gives the temperature in degrees Fahrenheit for a given temperature in degrees Celsius. What is the temperature in degrees Fahrenheit when the temperature is -40 degrees Celsius?

24. **PHYSICS** The formula $h = 120t - 16t^2$ gives the height h in feet of an object t seconds after it is shot upward from Earth's surface with an initial velocity of 120 feet per second. What will the height of the object be after 6 seconds?

25. **AGRICULTURE** Faith owns an organic apple orchard. From her experience the last few seasons, she has developed the formula $P = 20x - 0.01x^2 - 240$ to predict her profit P in dollars this season if her trees produce x bushels of apples. What is Faith's predicted profit this season if her orchard produces 300 bushels of apples?

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1-2 Study Guide and Intervention

Properties of Real Numbers

Real Numbers All real numbers can be classified as either rational or irrational. The set of rational numbers includes several subsets: natural numbers, whole numbers, and integers.

R	real numbers	{all rationals and irrationals}
Q	rational numbers	{all numbers that can be represented in the form $\frac{m}{n}$, where m and n are integers and n is not equal to 0}
I	irrational numbers	{all nonterminating, nonrepeating decimals}
Z	integers	{..., −3, −2, −1, 0, 1, 2, 3; ...}
W	whole numbers	{0, 1, 2, 3, 4, 5, 6, 7, 8, ...}
N	natural numbers	{1, 2, 3, 4, 5, 6, 7, 8, 9, ...}

Example **Name the sets of numbers to which each number belongs.**

a. $-\frac{11}{3}$ rationals (Q), reals (R)

b. $\sqrt{25}$

$\sqrt{25} = 5$ naturals (N), wholes (W), integers (Z), rationals (Q), reals (R)

Exercises

Name the sets of numbers to which each number belongs.

1. $\frac{6}{7}$ **2.** $-\sqrt{81}$ **3.** 0 **4.** 192.0005

5. 73 **6.** $34\frac{1}{2}$ **7.** $\frac{\sqrt{36}}{9}$ **8.** 26.1

9. π **10.** $\frac{15}{3}$ **11.** $-4.\overline{17}$

12. $\frac{\sqrt{25}}{2}$ **13.** -1 **14.** $\sqrt{42}$

15. -11.2 **16.** $-\frac{8}{13}$ **17.** $\frac{\sqrt{5}}{2}$

18. $33.\overline{3}$ **19.** 894,000 **20.** -0.02

Lesson 1-2

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1-2 Study Guide and Intervention *(continued)*

Properties of Real Numbers

Properties of Real Numbers

Real Number Properties		
	For any real numbers a, b, and c.	
Property	Addition	Multiplication
Commutative	$a + b = b + a$	$a \cdot b = b \cdot a$
Associative	$(a + b) + c = a + (b + c)$	$(a \cdot b) \cdot c = a \cdot (b \cdot c)$
Identity	$a + 0 = a = 0 + a$	$a \cdot 1 = a = 1 \cdot a$
Inverse	$a + (-a) = 0 = (-a) + a$	$a \cdot \frac{1}{a} = 1 = \frac{1}{a} \cdot a$, $a \neq 0$.
Closure	$a + b$ is a real number.	$a \cdot b$ is a real number.
Distributive	$a(b + c) = ab + ac$ and $(b + c)a = ba + ca$	

Example **Simplify $9x + 3y + 12y - 0.9x$.**

$9x + 3y + 12y - 0.9x = 9x + (-0.9x) + 3y + 12y$ Commutative Property (+)

$= (9 + (-0.9))x + (3 + 12)y$ Distributive Property

$= 8.1x + 15y$ Simplify.

Exercises

Simplify each expression.

1. $8(3a - b) + 4(2b - a)$
2. $40r + 18t - 5t + 11r$
3. $\frac{1}{5}(4j + 2k - 6j + 3k)$
4. $10(6g + 3h) + 4(5g - h)$
5. $12\left(\frac{a}{3} - \frac{b}{4}\right)$
6. $8(2.4r - 3.1t) - 6(1.5r + 2.4t)$
7. $4(20 - 4p) - \frac{3}{4}(4 - 16p)$
8. $5.5j + 8.9k - 4.7k - 10.9j$
9. $1.2(7x - 5y) - (10y - 4.3x)$
10. $9(7d - 4f) - 0.6(d + 5f)$
11. $2.5(12m - 8.5p)$
12. $\frac{3}{4}p - \frac{1}{5}r - \frac{3}{5}r - \frac{1}{2}p$
13. $4(10g + 80h) - 20(10h - 5g)$
14. $2(15d + 45c) + \frac{5}{6}(12d + 18c)$
15. $(7y - 2.1x)3 + 2(3.5x - 6y)$
16. $\frac{2}{3}(18m - 6p + 12m + 3p)$
17. $14(j - 2k) - 3j(4 - 7k)$
18. $50(3a - b) - 20(b - 2a)$

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1-3 Study Guide and Intervention

Solving Equations

Verbal Expressions and Algebraic Expressions The chart suggests some ways to help you translate word expressions into algebraic expressions. Any letter can be used to represent a number that is not known.

Word Expression	Operation
and, plus, sum, increased by, more than	addition
minus, difference, decreased by, less than	subtraction
times, product, of (as in $\frac{1}{2}$ of a number)	multiplication
divided by, quotient	division

Example 1 **Write an algebraic expression to represent 18 less than the quotient of a number and 3.**

$\frac{n}{3} - 18$

Example 2 **Write a verbal sentence to represent $6(n - 2) = 14$.**

Six times the difference of a number and two is equal to 14.

Exercises

Write an algebraic expression to represent each verbal expression.

1. the sum of six times a number and 25

2. four times the sum of a number and 3

3. 7 less than fifteen times a number

4. the difference of nine times a number and the quotient of 6 and the same number

5. the sum of 100 and four times a number

6. the product of 3 and the sum of 11 and a number

7. four times the square of a number increased by five times the same number

8. 23 more than the product of 7 and a number

Write a verbal sentence to represent each equation.

9. $3n - 35 = 79$

10. $2(n^3 + 3n^2) = 4n$

11. $\frac{5n}{n + 3} = n - 8$

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1-3 Study Guide and Intervention *(continued)*

Solving Equations

Properties of Equality To solve equations, we can use properties of equality.

Addition and Subtraction Properties of Equality	For any real numbers a, b, and c, if $a = b$, then $a + c = b + c$ and $a - c = b - c$.
Multiplication and Division Properties of Equality	For any real numbers a, b, and c, if $a = b$, then $a \cdot c = b \cdot c$ and, if $c \neq 0$, $\frac{a}{c} = \frac{b}{c}$.

Example 1 **Solve $10 - 8x = 50$.**

$10 - 8x = 50$	Original equation
$10 - 8x - 10 = 50 - 10$	Subtract 10 from both sides.
$-8x = 40$	Simplify.
$x = -5$	Divide both sides by -8.

Example 2 **Solve $4x + 5y = 100$ for y.**

$4x + 5y = 100$	Original equation
$4x + 5y - 4x = 100 - 4x$	Subtract $4x$ from both sides.
$5y = 100 - 4x$	Simplify.
$y = \frac{1}{5}(100 - 4x)$	Divide both sides by 5.
$y = 20 - \frac{4}{5}x$	Apply the distributive property.

Exercises

Solve each equation. Check your solution.

1. $3s = 45$

2. $17 = 9 - a$

3. $5t - 1 = 6t - 5$

4. $\frac{2}{3}m = \frac{1}{2}$

5. $7 - \frac{1}{2}x = 3$

6. $-8 = -2(z + 7)$

7. $0.2b = 10$

8. $3x + 17 = 5x - 13$

9. $5(4 - k) = -10k$

10. $120 - \frac{3}{4}y = 60$

11. $\frac{5}{2}n = 98 - n$

12. $4.5 + 2p = 8.7$

13. $4n + 20 = 53 - 2n$

14. $100 = 20 - 5r$

15. $2x + 75 = 102 - x$

Solve each equation or formula for the specified variable.

16. $a = 3b - c$, for b

17. $\frac{s}{2t} = 10$, for t

18. $h = 12g - 1$, for g

19. $\frac{3pq}{r} = 12$, for p

20. $2xy = x + 7$, for x

21. $\frac{d}{2} + \frac{f}{4} = 6$, for f

22. $3(2j - k) = 108$, for j

23. $3.5s - 42 = 14t$, for s

24. $\frac{m}{n} + 5m = 20$, for m

25. $4x - 3y = 10$, for y

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1-4 Study Guide and Intervention

Solving Absolute Value Equations

Absolute Value Expressions The **absolute value** of a number is its distance from 0 on a number line. The symbol $|x|$ is used to represent the absolute value of a number x.

Absolute Value	• **Words**	For any real number a, if a is positive or zero, the absolute value of a is a. If a is negative, the absolute value of a is the opposite of a.
	• **Symbols**	For any real number a, $\|a\| = a$, if $a \geq 0$, and $\|a\| = -a$, if $a < 0$.

Example 1 **Evaluate $|-4| - |-2x|$ if $x = 6$.**

$$\begin{aligned} |-4| - |-2x| &= |-4| - |-2 \cdot 6| \\ &= |-4| - |-12| \\ &= 4 - 12 \\ &= -8 \end{aligned}$$

Example 2 **Evaluate $|2x - 3y|$ if $x = -4$ and $y = 3$.**

$$\begin{aligned} |2x - 3y| &= |2(-4) - 3(3)| \\ &= |-8 - 9| \\ &= |-17| \\ &= 17 \end{aligned}$$

Exercises

Evaluate each expression if $w = -4$, $x = 2$, $y = \frac{1}{2}$, and $z = -6$.

1. $|2x - 8|$
2. $|6 + z| - |-7|$
3. $5 + |w + z|$
4. $|x + 5| - |2w|$
5. $|x| - |y| - |z|$
6. $|7 - x| + |3x|$
7. $|w - 4x|$
8. $|wz| - |xy|$
9. $|z| - 3|5yz|$
10. $5|w| + 2|z - 2y|$
11. $|z| - 4|2z + y|$
12. $10 - |xw|$
13. $|6y + z| + |yz|$
14. $3|wx| + \frac{1}{4}|4x + 8y|$
15. $7|yz| - 30$
16. $14 - 2|w - xy|$
17. $|2x - y| + 5y$
18. $|xyz| + |wxz|$
19. $z|z| + x|x|$
20. $12 - |10x - 10y|$
21. $\frac{1}{2}|5z + 8w|$
22. $|yz - 4w| - w$
23. $\frac{3}{4}|wz| + \frac{1}{2}|8y|$
24. $xz - |xz|$

1-4 Study Guide and Intervention *(continued)*

Solving Absolute Value Equations

Absolute Value Equations Use the definition of absolute value to solve equations containing absolute value expressions.

For any real numbers a and b, where $b \geq 0$, if $|a| = b$ then $a = b$ or $a = -b$.

Always check your answers by substituting them into the original equation. Sometimes computed solutions are not actual solutions.

Example **Solve $|2x - 3| = 17$. Check your solutions.**

Case 1

$$\begin{aligned} a &= b \\ 2x - 3 &= 17 \\ 2x - 3 + 3 &= 17 + 3 \\ 2x &= 20 \\ x &= 10 \end{aligned}$$

CHECK

$$\begin{aligned} |2x - 3| &= 17 \\ |2(10) - 3| &\stackrel{?}{=} 17 \\ |20 - 3| &\stackrel{?}{=} 17 \\ |17| &\stackrel{?}{=} 17 \\ 17 &= 17 \checkmark \end{aligned}$$

Case 2

$$\begin{aligned} a &= -b \\ 2x - 3 &= -17 \\ 2x - 3 + 3 &= -17 + 3 \\ 2x &= -14 \\ x &= -7 \end{aligned}$$

CHECK

$$\begin{aligned} |2x - 3| &= 17 \\ |2(-7) - 3| &\stackrel{?}{=} 17 \\ |-14 - 3| &\stackrel{?}{=} 17 \\ |-17| &\stackrel{?}{=} 17 \\ 17 &= 17 \checkmark \end{aligned}$$

There are two solutions, 10 and -7.

Exercises

Solve each equation. Check your solutions.

1. $|x + 15| = 37$
2. $|t - 4| - 5 = 0$
3. $|x - 5| = 45$
4. $|m + 3| = 12 - 2m$
5. $|5b + 9| + 16 = 2$
6. $|15 - 2k| = 45$
7. $5n + 24 = |8 - 3n|$
8. $|8 + 5a| = 14 - a$
9. $\frac{1}{3}|4p - 11| = p + 4$
10. $|3x - 1| = 2x + 11$
11. $\left|\frac{1}{3}x + 3\right| = -1$
12. $40 - 4x = 2|3x - 10|$
13. $5f - |3f + 4| = 20$
14. $|4b + 3| = 15 - 2b$
15. $\frac{1}{2}|6 - 2x| = 3x + 1$
16. $|16 - 3x| = 4x - 12$

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1-5 Study Guide and Intervention

Solving Inequalities

One-Step Inequalities The following properties can be used to solve inequalities.

Addition and Subtraction Properties for Inequalities	Multiplication and Division Properties for Inequalities
For any real numbers a, b, and c: If $a < b$, then $a + c < b + c$ and $a - c < b - c$. If $a > b$, then $a + c > b + c$ and $a - c > b - c$.	For any real numbers a, b, and c, with $c \neq 0$: If c is positive and $a < b$, then $ac < bc$ and $\frac{a}{c} < \frac{b}{c}$. If c is positive and $a > b$, then $ac > bc$ and $\frac{a}{c} > \frac{b}{c}$. If c is negative and $a < b$, then $ac > bc$ and $\frac{a}{c} > \frac{b}{c}$. If c is negative and $a > b$, then $ac < bc$ and $\frac{a}{c} < \frac{b}{c}$.

These properties are also true for $\leq$ and $\geq$.

Example 1 **Solve $2x + 4 > 36$.**

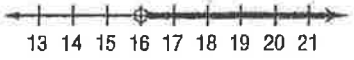
Graph the solution set on a number line.

$2x + 4 - 4 > 36 - 4$

$2x > 32$

$x > 16$

The solution set is $\{x \mid x > 16\}$.



Example 2 **Solve $17 - 3w \geq 35$.**

Graph the solution set on a number line.

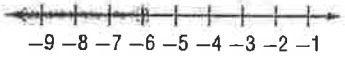
$17 - 3w \geq 35$

$17 - 3w - 17 \geq 35 - 17$

$-3w \geq 18$

$w \leq -6$

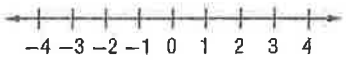
The solution set is $\{w \mid w \leq -6\}$.



Exercises

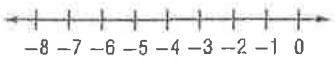
Solve each inequality. Then graph the solution set on a number line.

1. $7(7a - 9) \leq 84$

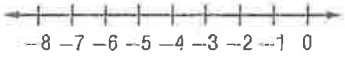


2. $3(9z + 4) > 35z - 4$

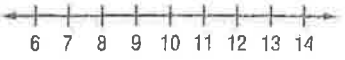
3. $5(12 - 3n) < 165$



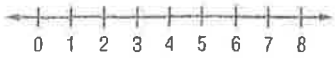
4. $18 - 4k < 2(k + 21)$



5. $4(b - 7) + 6 < 22$



6. $2 + 3(m + 5) \geq 4(m + 3)$



7. $4x - 2 > -7(4x - 2)$

8. $\frac{1}{3}(2y - 3) > y + 2$

9. $2.5d + 15 \leq 75$

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1-5 Study Guide and Intervention *(continued)*

Solving Inequalities

Multi-Step Inequalities An inequality is a statement that involves placing the inequality sign between two expressions. In order to solve the inequality, you need to find the set of all the values of the variable that makes the inequality true.

GAMES After three quarters of the season has past, the Tigers have won 48 out of 72 games. How many of the remaining games must they win in order to win more than 70% of all their games this season?

Understand Let x be the number of remaining games that the Tigers must win. The total number of games they will have won by the end of the season is $\frac{3}{4}(48 + x)$. They should win at least 70% of their games.

Plan $\frac{3}{4}(48 + x) > 0.7(72)$

Solve

$\frac{3}{4}(48 + x) > 0.7(72)$	Original Inequality
$48 + x > \frac{4}{3}0.7(72)$	Multiply each side by $\frac{4}{3}$.
$48 + x > 67.2$	Simplify.
$x > 19.2$	Subtract 48 from each side.

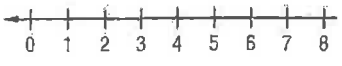
The Tigers have to win 20 or more games.

Exercises

Solve each inequality. Then graph the solution set on a number line.

1. $c \geq \frac{c + 4}{3}$

2. $r + 7 < 3(2r - 6)$



3. $3h < \frac{2h + 26}{5}$

4. Jim makes $5.75 an hour. Each week, 26% of his total pay is deducted for taxes. How many hours does Jim have to work if he wants his take-home pay to be at least $110 per week? Write and solve an inequality for this situation.

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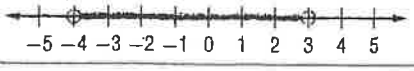
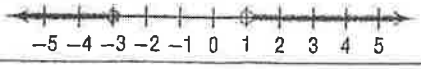
1-6 Study Guide and Intervention

Solving Compound and Absolute Value Inequalities

Compound Inequalities A compound inequality consists of two inequalities joined by the word *and* or the word *or*. To solve a compound inequality, you must solve each part separately.

***And* Compound Inequalities**	The graph is the intersection of solution sets of two inequalities.	Example: $x > -4$ and $x < 3$ 
***Or* Compound Inequalities**	The graph is the union of solution sets of two inequalities.	Example: $x \leq -3$ or $x > 1$ 

Example 1 **Solve $-3 \leq 2x + 5 \leq 19$. Graph the solution set on a number line.**

$-3 \leq 2x + 5$ and $2x + 5 \leq 19$

$-8 \leq 2x$ $2x \leq 14$

$-4 \leq x$ $x \leq 7$

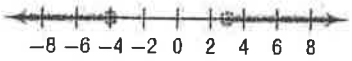
$-4 \leq x \leq 7$

Example 2 **Solve $3y - 2 \geq 7$ or $2y - 1 \leq -9$. Graph the solution set on a number line.**

$3y - 2 \geq 7$ or $2y - 1 \leq -9$

$3y \geq 9$ or $2y \leq -8$

$y \geq 3$ or $y \leq -4$

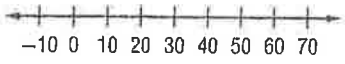


Exercises

Solve each inequality. Graph the solution set on a number line.

1. $-10 < 3x + 2 \leq 14$

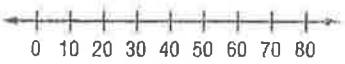
2. $3a + 8 < 23$ or $\frac{1}{4}a - 6 > 7$



3. $18 < 4x - 10 < 50$

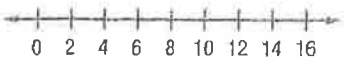
4. $5k + 2 < -13$ or $8k - 1 > 19$

5. $100 \leq 5y - 45 \leq 225$



6. $\frac{2}{3}b - 2 > 10$ or $\frac{3}{4}b + 5 < -4$

7. $22 < 6w - 2 < 82$



8. $4d - 1 > -9$ or $2d + 5 < 11$

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1-6 Study Guide and Intervention *(continued)*

Solving Compound and Absolute Value Inequalities

Absolute Value Inequalities Use the definition of absolute value to rewrite an absolute value inequality as a compound inequality.

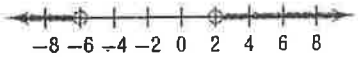
For all real numbers a and b, $b > 0$, the following statements are true.

1. If $|a| < b$, then $-b < a < b$.
2. If $|a| > b$, then $a > b$ or $a < -b$.

These statements are also true for $\leq$ and $\geq$, respectively.

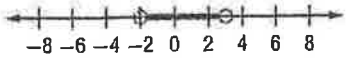
Example 1 **Solve $|x + 2| > 4$. Graph the solution set on a number line.**

By statement 2 above, if $|x + 2| > 4$, then $x + 2 > 4$ or $x + 2 < -4$. Subtracting 2 from both sides of each inequality gives $x > 2$ or $x < -6$.



Example 2 **Solve $|2x - 1| < 5$. Graph the solution set on a number line.**

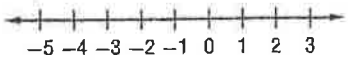
By statement 1 above, if $|2x - 1| < 5$, then $-5 < 2x - 1 < 5$. Adding 1 to all three parts of the inequality gives $-4 < 2x < 6$. Dividing by 2 gives $-2 < x < 3$.



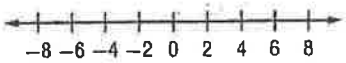
Exercises

Solve each inequality. Graph the solution set on a number line.

1. $|3x + 4| < 8$

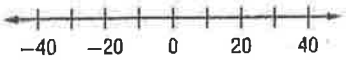


2. $|4k| + 1 > 27$

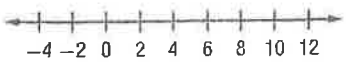


3. $\left|\frac{c}{2} - 3\right| \leq 5$

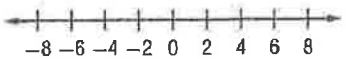
4. $|a + 9| \geq 30$



5. $|2f - 11| > 9$

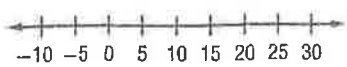


6. $|5w + 2| < 28$



7. $|10 - 2k| < 2$

8. $\left|\frac{x}{2} - 5\right| + 2 > 10$



9. $|4b - 11| < 17$

10. $|100 - 3m| > 20$