Packet due: The 3rd full day of school

Dear Riverside Students and Parents,
I know most are looking forward to a stress free summer. I encourage students to practice math by completing this summer packet or completing the listed ixls for the grade levels to keep those skills fresh. These assignments will focus on some of the skills and concepts necessary for success in your grade as well as sharpen skills you have already learned. Please complete the packet in pencil and make sure your handwriting is legible. If you choose to do the IXL,the number indicates grade level, the letter and number indicate lesson. It's the same criteria we followed during the school year. (20 mins or 80%). If the lesson was already completed, it must be done again. Simply click on it and begin again. Do not use a calculator because you will not be allowed to use one in class. Have a fun and safe summer and I look forward to seeing you in August!!!

5th to 6th ixl

3rd f6	3 f7	3f8	3f9	3f10	3f11	3f12	3f13	3g5	3g6	3g7
3g8	3g9	3g10	3g11	3g12	3g8	3g9	3g13	3k4	3k5	3k6
3k7	4 d1	4d2	4e1	3k7	4e3					

6th to 7th ixl

6th c5	7a1	7a2	7a5	7f3	7f9	7g9	6k6	6L7

7th to 8th grade ixl

7th i1	7 i 7	8c1	8c3	8c6	8c7	8y7	8y8

7th Honors and 8th to Alg I

8B3	**8B4**	**8C1**	**8C3**	**8C6**	**8C7**	**8C8**	**8Y1**	**8Y7**	**8Y8**

Alg I to Geometry (A1 is algebra i grade level on ixl)

A1 b1	**A1 b2**	**A1 g1**	**A1 i3**	**A1 i4**	**A1 i8**	**A1 t7**	**A1 T19**	**A1 U1 U 6**	**A1**

Grade 8 **to Grade** Alg I **Summer Math Packet**

NAME _____ DATE _____ PERIOD ____

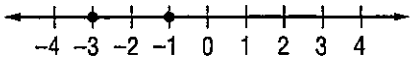
3-2

Study Guide and Intervention

Comparing and Ordering Integers

When two numbers are graphed on a number line, the number to the left is always less than (<) the number to the right. The number to the right is always greater than (>) the number to the left.

Model



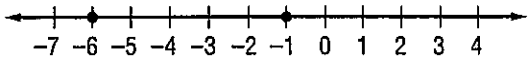
Words −3 is less than −1. −1 is greater than −1.

Symbols $-3 < -1$ $-1 > -3$

The symbol points to the lesser number.

EXAMPLE 1 **Replace the ● with < or > to make −1 ● −6 a true sentence.**

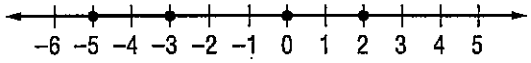
Graph each integer on a number line.



Since −1 is to the right of −6, $-1 > -6$.

EXAMPLE 2 **Order the integers 2, −3, 0, −5 from least to greatest.**

To order the integers, graph them on a number line.



Order the integers by reading from left to right: −5, −3, 0, 2.

EXERCISES

1. Replace the ● with < or > to make −5 ● −10 a true sentence.

2. Order −1, 5, −3, and 2 from least to greatest.

3. Order 0, −4, −2, and 7 from greatest to least.

4. Order −3, $|-2|$, 4, 0, and −5 from greatest to least.

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3-3

Study Guide and Intervention

The Coordinate Plane

The **coordinate plane** is used to locate points. The horizontal number line is the ***x*-axis**. The vertical number line is the ***y*-axis**. Their intersection is the **origin**.

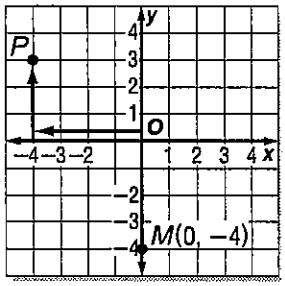
Points are located using **ordered pairs**. The first number in an ordered pair is the ***x*-coordinate**; the second number is the ***y*-coordinate**.

The coordinate plane is separated into four sections called **quadrants**.

EXAMPLE 1 **Name the ordered pair for point P. Then identify the quadrant in which P lies.**

- Start at the origin.
- Move 4 units left along the x-axis.
- Move 3 units up on the y-axis.

The ordered pair for point P is $(-4, 3)$.
P is in the upper left quadrant or quadrant II.

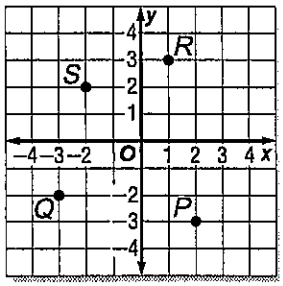


EXAMPLE 2 **Graph and label the point $M(0, -4)$.**

- Start at the origin.
- Move 0 units along the x-axis.
- Move 4 units down on the y-axis.
- Draw a dot and label it $M(0, -4)$.

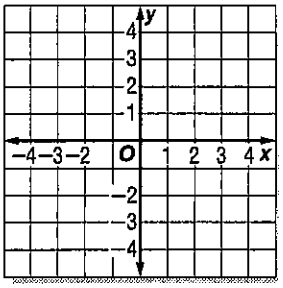
EXERCISES

Name the ordered pair for each point graphed at the right. Then identify the quadrant in which each point lies.



1. P
2. Q
3. R
4. S

Graph and label each point on the coordinate plane.



5. $A(-1, 1)$
6. $B(0, -3)$
7. $C(3, 2)$
8. $D(-3, -1)$
9. $E(1, -2)$
10. $F(1, 3)$

Lesson 3–3

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3-4

Study Guide and Intervention

Adding Integers

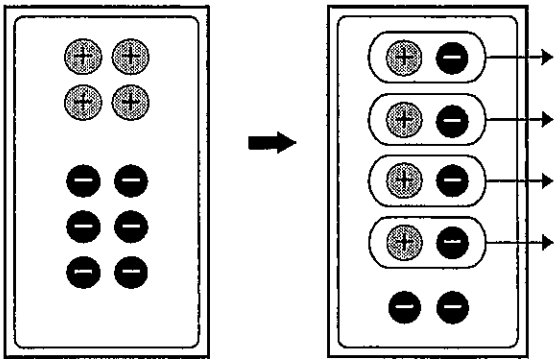
For integers with the same sign:
- the sum of two positive integers is positive.
- the sum of two negative integers is negative.

For integers with different signs, subtract their absolute values. The sum is:
- positive if the positive integer has the greater absolute value.
- negative if the negative integer has the greater absolute value.

To add integers, it is helpful to use counters or a number line.

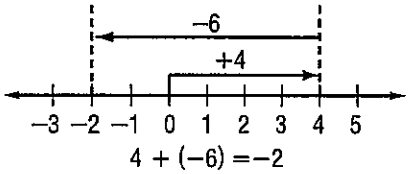
EXAMPLE 1 **Find 4 + (−6).**

Method 1 Use counters.
Combine a set of 4 positive counters and a set of 6 negative counters on a mat.



4 + (−6) 4 + (−6) = −2

Method 2 Use a number line.
- Start at 0.
- Move 4 units right.
- Then move 6 units left.



4 + (−6) = −2

EXERCISES

Add.

1. −5 + (−2)
2. 8 + 1
3. −7 + 10
4. 16 + (−11)
5. −22 + (−7)
6. −50 + 50
7. −10 + (−10)
8. 100 + (−25)
9. −35 + −20

Evaluate each expression if $a = 8$, $b = -8$, and $c = 4$.

10. $a + 15$
11. $b + (-9)$
12. $a + b$
13. $b + c$
14. $-10 + c$
15. $12 + b$

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3-5

Study Guide and Intervention

Subtracting Integers

To subtract an integer, add its opposite.

EXAMPLE 1 **Find 6 − 9.**

$6 - 9 = 6 + (-9)$ To subtract 9, add −9.
$= -3$ Simplify.

EXAMPLE 2 **Find −10 − (−12).**

$-10 - (-12) = -10 + 12$ To subtract −12, add 12.
$= 2$ Simplify.

EXAMPLE 3 **Evaluate $a - b$ if $a = -3$ and $b = 7$.**

$a - b = -3 - 7$ Replace a with −3 and b with 7.
$= -3 + (-7)$ To subtract 7, add −7.
$= -10$ Simplify.

EXERCISES

Subtract.

1. $7 - 9$
2. $20 - (-6)$
3. $-10 - 4$
4. $0 - 12$
5. $-7 - 8$
6. $13 - 18$
7. $-20 - (-5)$
8. $-8 - (-6)$
9. $25 - (-14)$
10. $-75 - 50$
11. $15 - 65$
12. $19 - (-10)$

Evaluate each expression if $m = -2$, $n = 10$, and $p = 5$.

13. $m - 6$
14. $9 - n$
15. $p - (-8)$
16. $p - m$
17. $m - n$
18. $-25 - p$

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3-6

Study Guide and Intervention

Multiplying Integers

The product of two integers with **different** signs is **negative**.

The product of two integers with the **same** sign is **positive**.

EXAMPLE 1 **Multiply $5(-2)$.**

$5(-2) = -10$ The integers have different signs. The product is negative.

EXAMPLE 2 **Multiply $-3(7)$.**

$-3(7) = -21$ The integers have different signs. The product is negative.

EXAMPLE 3 **Multiply $-6(-9)$.**

$-6(-9) = 54$ The integers have the same sign. The product is positive.

EXAMPLE 4 **Multiply $(-7)^2$.**

$(-7)^2 = (-7)(-7)$ There are 2 factors of -7.

$= 49$ The product is positive.

EXAMPLE 5 **Simplify $-2(6c)$.**

$-2(6c) = (-2 \cdot 6)c$ Associative Property of Multiplication.

$= -12c$ Simplify.

EXAMPLE 6 **Simplify $2(5x)$.**

$2(5x) = (2 \cdot 5)x$ Associative Propery of Multiplication.

$= 10x$ Simplify.

EXERCISES

Multiply.

1. $-5(8)$
2. $-3(-7)$
3. $10(-8)$
4. $-8(3)$
5. $-12(-12)$
6. $(-8)^2$

ALGEBRA Simplify each expression.

7. $-5(7a)$
8. $3(-2x)$
9. $4(6f)$
10. $7(6b)$
11. $-6(-3y)$
12. $7(-8g)$

ALGEBRA Evaluate each expression if $a = -3$, $b = -4$, and $c = 5$.

13. $-2a$
14. $9b$
15. ab
16. $-3ac$
17. $-2c^2$
18. abc

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3-7

Study Guide and Intervention

Dividing Integers

The quotient of two integers with different signs is negative.

The quotient of two integers with the same sign is positive.

EXAMPLE 1 **Divide $30 \div (-5)$.**

$30 \div (-5)$ The integers have different signs.

$30 \div (-5) = -6$ The quotient is negative.

EXAMPLE 2 **Divide $-100 \div (-5)$.**

$-100 \div (-5)$ The integers have the same sign.

$-100 \div (-5) = 20$ The quotient is positive.

EXERCISES

Divide.

1. $-12 \div 4$
2. $-14 \div (-7)$
3. $\frac{18}{-2}$
4. $-6 \div (-3)$
5. $-10 \div 10$
6. $\frac{-80}{-20}$
7. $350 \div (-25)$
8. $-420 \div (-3)$
9. $\frac{540}{45}$
10. $\frac{-256}{16}$

ALGEBRA Evaluate each expression if $d = -24$, $e = -4$, and $f = 8$.

11. $12 \div e$
12. $40 \div f$
13. $d \div 6$
14. $d \div e$
15. $f \div e$
16. $e^2 \div f$
17. $\frac{-d}{e}$
18. $ef \div 2$
19. $\frac{f^2}{e^2}$
20. $\frac{de}{f}$

Lesson 3-7

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4-1

Study Guide and Intervention

Writing Expressions and Equations

The table below shows phrases written as mathematical expressions.

Phrases	Expression	Phrases	Expression
9 more than a number the sum of 9 and a number a number plus 9 a number increased by 9 the total of x and 9	$x + 9$	4 subtracted from a number a number minus 4 4 less than a number a number decreased by 4 the difference of h and 4	$h - 4$
Phrases	**Expression**	**Phrases**	**Expression**
6 multiplied by g 6 times a number the product of g and 6	$6g$	a number divided by 5 the quotient of t and 5 divide a number by 5	$\frac{t}{5}$

The table below shows sentences written as an equation.

Sentences	Equation
Sixty less than three times the amount is \$59. Three times the amount less 60 is equal to 59. 59 is equal to 60 subtracted from three times a number. A number times three minus 60 equals 59.	$3n - 60 = 59$

Lesson 4–1

EXERCISES

Write each phrase as an algebraic expression.

1. 7 less than m
2. the quotient of 3 and y
3. the total of 5 and c
4. the difference of 6 and r
5. n divided by 2
6. the product of k and 9

Write each sentence as an algebraic equation.

7. A number increased by 7 is 11.
8. The price decreased by \$4 is \$29.
9. Twice as many points as Bob would be 18 points.
10. After dividing the money 5 ways, each person got \$67.
11. Three more than 8 times as many trees is 75 trees.
12. Seven less than a number is 15.

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4-2

Study Guide and Intervention

Solving Addition and Subtraction Equations

Remember, equations must always remain balanced. If you subtract the same number from each side of an equation, the two sides remain equal. Also, if you add the same number to each side of an equation, the two sides remain equal.

EXAMPLE 1 **Solve $x + 5 = 11$. Check your solution.**

$x + 5 = 11$ Write the equation.
$-5 = -5$ Subtract 5 from each side.
$x = 6$ Simplify.

Check $x + 5 = 11$ Write the equation.
$6 + 5 \stackrel{?}{=} 11$ Replace x with 6.
$11 = 11$ ✓ This sentence is true.

The solution is 6.

EXAMPLE 2 **Solve $15 = t - 12$. Check your solution.**

$15 = t - 12$ Write the equation.
$+12 = +12$ Add 12 to each side.
$27 = t$ Simplify.

Check $15 = t - 12$ Write the equation.
$15 \stackrel{?}{=} 27 - 12$ Replace t with 27.
$15 = 15$ ✓ This sentence is true.

The solution is 27.

EXERCISES

Solve each equation. Check your solution.

1. $h + 3 = 14$ **2.** $m + 8 = 22$ **3.** $p + 5 = 15$ **4.** $17 = y + 8$

5. $w + 4 = -1$ **6.** $k + 5 = -3$ **7.** $25 = 14 + r$ **8.** $57 + z = 97$

9. $b - 3 = 6$ **10.** $7 = c - 5$ **11.** $j - 12 = 18$ **12.** $v - 4 = 18$

13. $-9 = w - 12$ **14.** $y - 8 = -12$ **15.** $14 = f - 2$ **16.** $23 = n - 12$

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4-3 Study Guide and Intervention

Solving Multiplication Equations

If each side of an equation is divided by the same non-zero number, the resulting equation is equivalent to the given one. You can use this property to solve equations involving multiplication and division.

EXAMPLE 1 **Solve $45 = 5x$. Check your solution.**

$45 = 5x$	Write the equation.
$\frac{45}{5} = \frac{5x}{5}$	Divide each side of the equation by 5.
$9 = x$	$45 \div 5 = 9$

Check $45 = 5x$ Write the original equation.
$45 \stackrel{?}{=} 5(9)$ Replace x with 9. Is this sentence true?
$45 = 45$ ✓

The solution is 9.

EXAMPLE 2 **Solve $-21 = -3y$. Check your solution.**

$-21 = -3y$	Write the equation.
$\frac{-21}{-3} = \frac{-3y}{-3}$	Divide each side by -3.
$7 = y$	$-21 \div (-3) = 7$

Check $-21 = -3y$ Write the original equation.
$-21 \stackrel{?}{=} -3(7)$ Replace y with 7. Is this sentence true?
$-21 = -21$ ✓

The solution is 7.

EXERCISES

Solve each equation. Then check your solution.

1. $8q = 56$ **2.** $4p = 32$ **3.** $42 = 6m$ **4.** $104 = 13h$

5. $-6n = 30$ **6.** $-18x = 36$ **7.** $48 = -8y$ **8.** $72 = -3b$

9. $-9a = -45$ **10.** $-12m = -120$ **11.** $-66 = -11t$ **12.** $-144 = -9r$

13. $3a = 4.5$ **14.** $2h = 3.8$ **15.** $4.9 = 0.7k$ **16.** $9.75 = 2.5z$

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4-4 Study Guide and Intervention

Solving Two-Step Equations

To solve two-step equations, you need to add or subtract first. Then divide to solve the equation.

EXAMPLE 1 **Solve $7v - 3 = 25$. Check your solution.**

$7v - 3 = 25$	Write the equation.
$+3 = +3$	Add 3 to each side.
$7v = 28$	Simplify.
$\frac{7v}{7} = \frac{28}{7}$	Divide each side by 7.
$v = 4$	Simplify.

Check

$7v - 3 = 25$	Write the original equation.
$7(4) - 3 \stackrel{?}{=} 25$	Replace v with 4.
$28 - 3 \stackrel{?}{=} 25$	Multiply.
$25 = 25$ ✓	The solution checks.

The solution is 4.

EXAMPLE 2 **Solve $-10 = 8 + 3x$. Check your solution.**

$-10 = 8 + 3x$	Write the equation.
$-8 = -8$	Subtract 8 from each side.
$-18 = 3x$	Simplify.
$\frac{-18}{3} = \frac{3x}{3}$	Divide each side by 3.
$-6 = x$	Simplify.

Check

$-10 = 8 + 3x$	Write the original equation.
$-10 \stackrel{?}{=} 8 + 3(-6)$	Replace x with -6.
$-10 \stackrel{?}{=} 8 + (-18)$	Multiply.
$-10 = -10$ ✓	The solution checks.

The solution is -6.

EXERCISES

Solve each equation. Check your solution.

1. $4y + 1 = 13$	**2.** $6x + 2 = 26$	**3.** $-3 = 5k + 7$	**4.** $6n + 4 = -26$
5. $7 = -3c - 2$	**6.** $-8p + 3 = -29$	**7.** $-5 = -5t - 5$	**8.** $-9r + 12 = -24$
9. $11 + 7n = 4$	**10.** $35 = 7 + 4b$	**11.** $15 + 2p = 9$	**12.** $49 = 16 + 3y$
13. $2 = 4t - 14$	**14.** $-9x - 10 = 62$	**15.** $30 = 12z - 18$	**16.** $7 + 4g = 7$
17. $24 + 9x = -3$	**18.** $50 = 16q + 2$	**19.** $3c - 2.5 = 4.1$	**20.** $9y + 4.8 = 17.4$