RIVERDALE PUBLIC SCHOOL DISTRICT

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June 2011

Dear Parents/Guardians.

In order for students to be ready for their mathematics program this fall, Riverdale School requires that incoming Algebra students complete the attached Mathematics Review Activities Packet. These review activities were previously taught. Therefore students are not expected to learn new material on their own.

We need your help to oversee the completion of the summer mathematics review questions. At the bottom of this page is a tear-off which should be returned no later than June 17th to your child mathematics teacher. Attached is a copy of the Summer Mathematics Review Activities Packet. The completed activities packet needs to be signed by the parents/ guardians and returned on September 9. 2011.

With your help, this summer mathematics review program will be successful in helping your child be ready for the new school year.

Summer Mathematics 2011

I have received the notification about requirement about the Summer Mathematics Review Activities Packet for all students.

_____ _____

Student's Name *Parent's Name*

_____ _____

Student's Signature *Parents Signature*

Please return form by June 17th

Name_____ Parent Signature_____

SUMMER MATH REVIEW ACTIVITIES
INCOMING
ALGEBRA 1 OR FOUNDATIONS OF ALGEBRA

Complete so that the fractions are equivalent.

1. $\frac{3}{4} = \frac{\quad}{12}$
2. $\frac{4}{9} = \frac{\quad}{18}$
3. $\frac{4}{5} = \frac{\quad}{20}$
4. $\frac{5}{8} = \frac{\quad}{24}$

Write each fraction in simplest form.

1. $\frac{4}{6}$
2. $\frac{2}{4}$
3. $\frac{6}{12}$
4. $\frac{8}{10}$

Write each improper fraction as a mixed number in simplest form.

1. $\frac{7}{5}$
2. $\frac{13}{8}$
3. $\frac{13}{4}$
4. $\frac{22}{7}$

Write each mixed number as an improper fraction.

1. $6\frac{1}{3}$
2. $5\frac{3}{4}$
3. $7\frac{1}{6}$
4. $9\frac{1}{8}$

Find the LCD for each pair of fractions.

1. $\frac{2}{5}, \frac{1}{3}$
2. $\frac{3}{4}, \frac{5}{6}$
3. $\frac{1}{2}, \frac{4}{7}$
4. $\frac{4}{5}, \frac{2}{3}$
5. $\frac{5}{8}, \frac{7}{12}$
6. $\frac{1}{2}, \frac{6}{7}$

Add.

1. $\frac{4}{7} + \frac{2}{7}$
2. $\frac{5}{9} + \frac{4}{9}$
3. $\frac{11}{15} + \frac{2}{15}$

Add. Write each sum in simplest form.

1. $13 + 9\frac{7}{8}$
2. $6\frac{1}{4} + 8\frac{3}{4}$
3. $5\frac{1}{6} + 7\frac{1}{3}$
4. $11\frac{3}{4} + 8\frac{2}{3}$

Subtract. Write each difference in simplest form.

1. $\frac{5}{6} - \frac{4}{6}$
2. $\frac{9}{10} - \frac{3}{10}$
3. $\frac{9}{16} - \frac{3}{16}$
4. $\frac{11}{12} - \frac{3}{12}$

Subtract. Write each difference in simplest form.

1. $14\frac{2}{3} - 12$
2. $10 - 4\frac{3}{4}$
3. $7\frac{7}{9} - 3\frac{4}{9}$
4. $8\frac{1}{3} - 4\frac{2}{3}$

Multiply.

1. $\frac{2}{3} \times \frac{1}{4}$
2. $\frac{3}{7} \times \frac{1}{2}$
3. $\frac{1}{3} \times \frac{3}{5}$
4. $\frac{1}{2} \times \frac{6}{7}$
5. $\frac{7}{10} \times \frac{5}{7}$
6. $\frac{1}{4} \times \frac{1}{4}$

Multiply. Write each product in simplest form.

1. $\frac{2}{3} \times \frac{1}{4}$
2. $\frac{3}{7} \times \frac{1}{2}$
3. $\frac{1}{3} \times \frac{3}{5}$
4. $\frac{1}{2} \times \frac{6}{7}$
5. $\frac{3}{8} \times 4$
6. $\frac{7}{10} \times \frac{5}{7}$

Divide. Write each quotient in simplest form.

5. $\frac{7}{8} \div \frac{1}{4}$ 6. $\frac{2}{5} \div \frac{5}{8}$ 7. $\frac{1}{3} \div \frac{1}{6}$

8. $8 \div \frac{1}{3}$ 9. $\frac{5}{9} \div 5$ 10. $\frac{2}{4} \div 1\frac{1}{2}$

Express each fraction as a decimal. Use bar notation if necessary.

1. $\frac{4}{25}$ 2. $\frac{3}{5}$ 3. $\frac{7}{20}$ 4. $\frac{3}{50}$

5. $\frac{9}{10}$ 6. $\frac{7}{8}$ 7. $\frac{1}{3}$ 8. $\frac{14}{16}$

Write each decimal as a fraction.

1. 0.525 2. 0.45 3. 0.333...

4. 0.43 5. 0.8 6. 0.1212...

Express each decimal as a percent.

1. 0.66 2. 0.08 3. 0.75 4. 0.001

Express each percent as a decimal.

1. 45% 2. 91% 3. 24.5% 4. 8.37%

Express each fraction as a percent.

7. $\frac{17}{100}$ 8. $\frac{4}{5}$ 9. $\frac{1}{4}$ 10. $\frac{8}{20}$

Order of Operations

Evaluate Rational Expressions Numerical expressions often contain more than one operation. To evaluate them, use the rules for order of operations shown below.

Order of Operations	**Step 1** Evaluate expressions inside grouping symbols. **Step 2** Evaluate all powers. **Step 3** Do all multiplication and/or division from left to right. **Step 4** Do all addition and/or subtraction from left to right.

2. $(12 + 4) \cdot 6$

3. $10 + 2 \cdot 3$

5. $15 - 12 \div 4$

6. $\dfrac{15 + 60}{30 - 5}$

8. $24 \div 3 \cdot 2 - 3^2$

9. $8^2 \div (2 \cdot 8) + 2$

11. $\dfrac{4 + 3^2}{12 + 1}$

12. $\dfrac{8(2) - 4}{8 \div 4}$

14. $\dfrac{2 \cdot 4^2 - 8 \div 2}{(5 + 2) \cdot 2}$

15. $\dfrac{4 \cdot 3^2 - 3 \cdot 2}{3 \cdot 5}$

17. $\dfrac{5^2 - 3}{20(3) + 2(3)}$

18. $\dfrac{8^2 - 2^2}{(2 \cdot 8) + 4}$

Commutative and Associative Properties

Commutative and Associative Properties The Commutative and Associative Properties can be used to simplify expressions. The Commutative Properties state that the order in which you add or multiply numbers does not change their sum or product. The Associative Properties state that the way you group three or more numbers when adding or multiplying does not change their sum or product.

Commutative Properties	For any numbers a and b, $a + b = b + a$ and $a \cdot b = b \cdot a$.
Associative Properties	For any numbers a, b, and c, $(a + b) + c = a + (b + c)$ and $(ab)c = a(bc)$.

Evaluate each expression.

1. $12 + 10 + 8 + 5$

2. $16 + 8 + 22 + 12$

3. $10 \cdot 7 \cdot 2.5$

4. $4 \cdot 8 \cdot 5 \cdot 3$

5. $12 + 20 + 10 + 5$

6. $26 + 8 + 4 + 22$

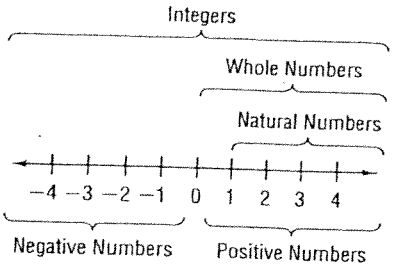
7. $3\frac{1}{2} + 4 + 2\frac{1}{2} + 3$

8. $\frac{3}{4} \cdot 12 \cdot 4 \cdot 2$

9. $3.5 + 2.4 + 3.6 + 4.2$

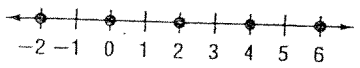
Rational Numbers on the Number Line

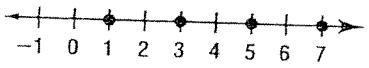
Graph Rational Numbers The figure at the right is part of a number line. A number line can be used to show the sets of **natural numbers**, **whole numbers**, and **integers**. **Positive numbers**, are located to the right of 0, and **negative numbers** are located to the left of 0.



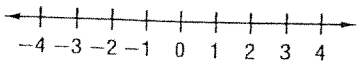
Another set of numbers that you can display on a number line is the set of **rational numbers**. A rational number can be written as $\frac{a}{b}$, where a and b are integers and $b \neq 0$. Some examples of rational numbers are $\frac{1}{4}$, $\frac{-3}{5}$, $\frac{-7}{-8}$, and $\frac{12}{-3}$.

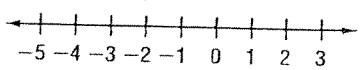
Name the coordinates of the points graphed on each number line.

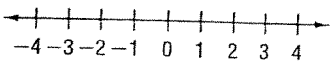
1. 

2. 

Graph each set of numbers.

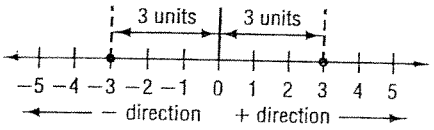
5. {−3, −1, 1, 3}


6. {−5, −2, 1, 2}


7. {integers less than 0}


Rational Numbers on the Number Line

Absolute Value On a number line, −3 is three units from zero in the negative direction, and 3 is three units from zero in the positive direction. The number line at the right illustrates the meaning of **absolute value**. The absolute value of a number n is the distance from zero on a number line and is represented $|n|$. For this example, $|-3| = 3$ and $|3| = 3$.



Find each absolute value.

1. $|2|$
2. $|-5|$
3. $|-24|$
4. $|-1.3|$
5. $\left|-\frac{2}{3}\right|$
6. $\left|\frac{35}{41}\right|$

Adding and Subtracting Rational Numbers

Add Rational Numbers

Adding Rational Numbers, Same Sign	Add the numbers. If both are positive, the sum is positive; if both are negative, the sum is negative.
Adding Rational Numbers, Different Signs	Subtract the number with the lesser absolute value from the number with the greater absolute value. The sign of the sum is the same as the sign of the number with the greater absolute value.

negative rational number so that their sum is 0. The numbers, called **opposites**, are **additive inverses** of each other.

Additive Inverse Property	For every number a, $a + (-a) = 0$.

To subtract a rational number, add its inverse and use the rules for addition given on page 81.

Subtraction of Rational Numbers	For any numbers a and b, $a - b = a + (-b)$.

Find each sum.

1. $12 + 24$
2. $-6 + 14$
3. $-12 + (-15)$
4. $-21.5 + 34.2$
5. $8.2 + (-3.5)$
6. $23.5 + (-15.2)$
7. $90 + (-105)$
8. $108 + (-62)$
9. $-84 + (-90)$

Find each difference.

1. $11 - 41$
2. $15 - (-21)$
3. $-33 - (-17)$
4. $18 - (-12)$
5. $15.5 - (-2.5)$
6. $65.8 - (-23.5)$
7. $90 - (-15)$
8. $-10.8 - (6.8)$
9. $-84 - (-72)$

Multiplying Rational Numbers

Multiply Integers You can use the rules below when multiplying integers and rational numbers.

Multiplying Numbers with the Same Sign	The product of two numbers having the same sign is positive.
Multiplying Numbers with Different Signs	The product of two numbers having different signs is negative.

Find each product.

1. $11(4)$
2. $-5(-3)$
3. $(-24)(-2)$
4. $(60)(-3)$
5. $(-2)(-3)(-4)$
6. $8(-15)$

Dividing Rational Numbers

ivide Integers The rules for finding the sign of a quotient are similar to the rules for ıding the sign of a product.

Dividing Two Numbers with the Same Sign	The quotient of two numbers having the same sign is positive.
Dividing Two Numbers with Different Signs	The quotient of two numbers having different signs is negative.

each quotient.

1. $30 \div (-10)$
2. $-32 \div 16$
3. $80 \div 5$
4. $18 \div (-3)$

Simplify.

13. $\frac{-2 + (-4)}{(-2) + (-1)}$

14. $\frac{5(-10 + (-2))}{-2 + 1}$

15. $\frac{-6(-6 + 2)}{-10 + (-2)}$

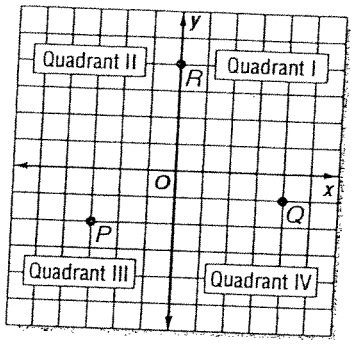
16. $\frac{-12(2 + (-3))}{-4 + 1}$

17. $\frac{-4(-8 + (-4))}{-3 + (-3)}$

18. $\frac{4(-12 + 4)}{-2(8)}$

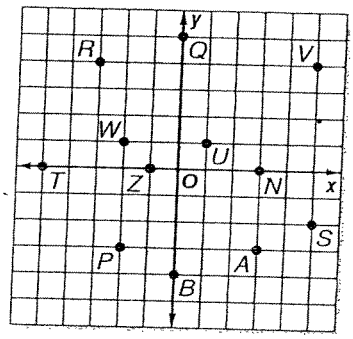
The Coordinate Plane

Identify Points In the diagram at the right, points are located in reference to two perpendicular number lines called **axes**. The horizontal number line is the ***x*-axis**, and the vertical number line is the ***y*-axis**. The plane containing the x- and y-axes is called the **coordinate plane**. Points in the coordinate plane are named by ordered pairs of the form (x, y). The first number, or ***x*-coordinate** corresponds to a number on the x-axis. The second number, or ***y*-coordinate**, corresponds to a number on the y-axis.



The axes divide the coordinate plane into Quadrants I, II, III, and IV, as shown. The point where the axes intersect is called the **origin**. The origin has coordinates (0, 0).

Write the ordered pair for each point shown at the right. Name the quadrant in which the point is located.



1. N

2. P

3. Q

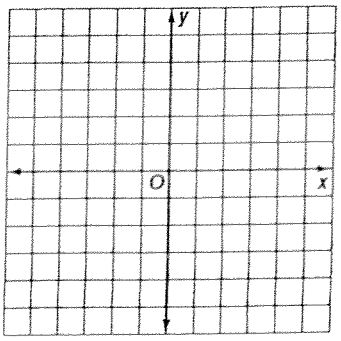
4. R

5. S

6. T

Graph Points To **graph** an ordered pair means to draw a dot at the point on the coordinate plane that corresponds to the ordered pair. To graph an ordered pair (x, y), begin at the origin. Move left or right x units. From there, move up or down y units. Draw a dot at that point.

Plot each point on the coordinate plane at the right.



1. $A(2, 4)$

2. $B(0, -3)$

3. $C(-4, -4)$

4. $D(-2, 0)$

5. $E(1, -4)$

6. $F(0, 0)$

Solve each equation. Show your work to receive full credit. Then check your answer.

1) $y - 7 = 8$

2) $w + 14 = -8$

3) $y + (-10) = 6$

4) $-56 = 20 - (-e)$

5) $y - 32 = -1$

6) $-\frac{1}{2} = s + (-19)$

Write an equation for each problem. Show your work to receive full credit. Then solve the equation and check your solution.

7) A number decreased by 14 is - 46. Find the number.

8) Thirteen subtracted from a number is 5. Find the number.

9) What number minus 28 equals -2?

10) What number less five is equal to thirty-nine?

Extra credit: Solve each equation. Show your work to receive full credit. Then check your answer.

1) $-25 = 5m$

2) $0.5j = 5$

3) $\frac{2}{7}q = -4$

4) $-\frac{d}{7} = 11$

5) $\frac{14}{x} = 2$

Solve each equation. Show your work to receive full credit. Then check your answer.

1) $-6d = -42$

2) $-7t = \frac{5}{7}$

3) $-18 = \frac{m}{6}$

4) $\frac{5}{8}x = -40$

5) $-2.4p = 7.2$

6) $-\frac{1}{2}s = -19$

Write an equation for each problem. Show your work to receive full credit. Then solve the equation and check your solution.

7) Four times a number equals 64. Find the number.

8) What number multiplied by -4 equals -16?

9) Negative three fifths of a number is -15. What is the number?

10) One sixth of a number is -17. Find the number?