

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 Pre-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 PRE-ALGEBRA
RULES FOR ORDER OF OPERATIONS

Rule 1: First perform any calculations inside grouping symbols.

These include parenthesis (), brackets [], and fraction bars as in $\frac{6+2}{4}$
which means $(6+2) \div 4$.

Rule 2: Evaluate any exponents ex: $3^2 = 9$.

Rule 3: Next perform all multiplications and divisions, whichever comes first, working from left to right.

Rule 4: Lastly, perform all additions and subtractions, whichever comes first working from left to right.

EXAMPLE: Evaluate $3 + 6 \times (5 + 4) \div 3 - 7$ using the order of operations.

Step 1:	$3 + 6 \times (5 + 4) \div 3 - 7$	=	$3 + 6 \times 9 \div 3 - 7$	Parentheses
Step 2:	$3 + 6 \times 9 \div 3 - 7$	=	$3 + 54 \div 3 - 7$	Multiplication
Step 3:	$3 + 54 \div 3 - 7$	=	$3 + 18 - 7$	Division
Step 4:	$3 + 18 - 7$	=	$21 - 7$	Addition
Step 5:	$21 - 7$	=	14	Subtraction

Practice. Simplify the following.

1) $7 + 3 \cdot 5$

2) $36 \div 9 - 3$

3) $5 \cdot (7 - 2) - 9$

4) $\frac{2(17+4)}{3}$

5) $\frac{18}{(7-4)+6}$

6) $4[9 + (1 \cdot 16) - 8]$

7) $7(3 + 10) - 2 \cdot 6$

8) $7 + 3^2 - 2 \cdot 2$

9) $27 \div 3 + (12 - 4)$

10) $2[2(6 - 3)]^3 + 5$

In order to add or subtract fractions, you must first find a common denominator for each fraction.

For example, if you wanted to add $\frac{1}{4}$ and $\frac{3}{8}$ you would do this:

$$\frac{1}{4} + \frac{3}{8} = \frac{1}{4} \times \frac{2}{2} + \frac{3}{8} = \frac{2}{8} + \frac{3}{8} = \frac{2+3}{8} = \frac{5}{8}$$

Subtraction is done the same way:

$$\frac{7}{10} - \frac{2}{5} = \frac{7}{10} - \frac{2}{5} \times \frac{2}{2} = \frac{7}{10} - \frac{4}{10} = \frac{3}{10}$$

For multiplication and division, no common denominator is needed.

For multiplication, simply multiply numerators and denominators, and then reduce to lowest terms.

$$\frac{3}{4} \times \frac{1}{7} = \frac{3 \times 1}{4 \times 7} = \frac{3}{28}$$

For division, you must invert the denominator first, and then multiply.

Remember to reduce to lowest terms.

$$\frac{2}{5} \div \frac{3}{10} = \frac{2}{5} \times \frac{10}{3} = \frac{2 \times 10}{5 \times 3} = \frac{20}{15} = \frac{5 \times 4}{5 \times 3} = \frac{4}{3} = 1\frac{1}{3}$$

Perform the indicated operation on the fractions below: Leave all answers in simplest form.

$\frac{1}{3} + \frac{2}{5} =$	$\frac{2}{3} \times \frac{3}{10} =$	$\frac{3}{5} \div \frac{3}{7} =$	$\frac{3}{5} + \frac{1}{4} =$	$\frac{3}{5} - \frac{1}{5} =$
$\frac{3}{4} - \frac{3}{8} =$	$\frac{3}{8} \times \frac{1}{6} =$	$\frac{9}{12} + \frac{7}{30} =$	$\frac{9}{10} \div \frac{3}{5} =$	$\frac{4}{5} \times \frac{7}{12} =$
$\frac{3}{7} \times \frac{7}{9} =$	$\frac{1}{11} + \frac{5}{11} =$	$\frac{3}{4} \div \frac{5}{8} =$	$\frac{2}{5} - \frac{1}{4} =$	$\frac{1}{4} + \frac{3}{7} =$
$\frac{1}{7} \div \frac{1}{5} =$	$\frac{4}{7} - \frac{1}{3} =$	$\frac{5}{6} \times \frac{3}{10} =$	$\frac{3}{7} + \frac{3}{28} =$	$\frac{20}{25} \times \frac{1}{2} =$
$\frac{3}{5} \div \frac{5}{6} =$	$\frac{3}{4} \times \frac{3}{4} =$	$\frac{2}{3} + \frac{4}{9} =$	$\frac{3}{5} \times \frac{3}{4} =$	$\frac{3}{5} - \frac{1}{4} =$
$\frac{3}{4} + \frac{3}{8} =$	$\frac{73}{25} \div \frac{1}{5} =$	$\frac{7}{9} - \frac{1}{18} =$	$\frac{1}{15} \times \frac{5}{7} =$	$\frac{9}{10} \div \frac{4}{5} =$
$\frac{7}{8} - \frac{3}{4} =$	$\frac{1}{3} \div \frac{3}{7} =$	$\frac{9}{13} \times \frac{1}{9} =$	$\frac{3}{4} + \frac{1}{3} =$	$\frac{1}{3} - \frac{3}{10} =$
$\frac{1}{6} \times \frac{5}{6} =$	$\frac{5}{6} - \frac{5}{9} =$	$\frac{5}{6} + \frac{1}{12} =$	$\frac{5}{6} \times \frac{18}{19} =$	$\frac{21}{25} \div \frac{1}{5} =$
$\frac{5}{12} + \frac{1}{15} =$	$\frac{3}{14} \times \frac{7}{5} =$	$\frac{11}{13} \div \frac{11}{13} =$	$\frac{3}{4} - \frac{1}{5} =$	$\frac{1}{3} + \frac{3}{4} =$

INTEGERS

Addition of Rational Numbers:

1. To add rational numbers with the *same sign*, add their absolute values. The sum has the same sign as their addends.
2. To add rational numbers with *different signs*, subtract the lesser absolute value from the greater absolute value. The sum has the same sign as the number with the higher absolute value.

Ex: $-4 + -8 = -12$

Ex: $-10 + 5 = -5$

Subtraction of Rational Numbers:

1. To subtract a rational number, add its additive inverse.
2. If there is a double negative, change to addition and change sign of the number to positive.

Ex: $6 - 10$ can be written as $6 + -10 = -4$

Ex: $12 - (-7)$ is a double negative, it is rewritten as $12 + 7 = 19$

Multiplication or Division of Rational Numbers:

1. The product or quotient of two numbers having the same sign is positive.
2. The product or quotient of two numbers having different signs is negative.

Ex: $10 \times -8 = -80$

Ex: $-5 \times -6 = +30$

Ex: $4 \div -2 = -2$

Ex: $-18 \div -9 = 2$

Practice:

$-19 - 8 =$

$16 - (-23) =$

$9 - (-24) =$

$12 - 34 =$

$-9 - (-33) =$

$2 + (-8) =$

$-14 + 8 =$

$-58 + (-42) =$

$-8 \times -1 =$

$-13 \times 10 =$

$28 \div -7 =$

$-81 \div -9 =$

$\frac{-100}{20} =$

$-33 \times 11 =$

$25 \times 4 =$

Fractions, Decimals, and Percents

A percent is a ratio that compares a number to 100.

Example 1

Express the percent as a fraction.

65%

$$65\% = \frac{65}{100}$$

$$= \frac{13}{20}$$

Write as a fraction with denominator of 100.

Simplify.

Example 2

Express the percent as a decimal.

150%

$$150\% = \frac{150}{100}$$

$$= 1.5$$

Divide by 100 and remove the %.

Example 3

Express the fraction as a percent.

$$\frac{3}{20}$$

$$\frac{3}{20} = \frac{15}{100} \text{ or } 15\%$$

Write equivalent fraction with denominator of 100.

Example 4

Express the decimal as a percent.

3.17

$$3.17 = 3.17 \times 100$$

$$= 317\%$$

Multiply by 100 and add the %.

Express each decimal or fraction as a percent. Round to the nearest tenth percent, if necessary.

0.65

0.772

0.6

3.45

0.47

0.01

22.6

0.79

0.28

0.355

0.0015

44

$$\frac{11}{20}$$

$$\frac{1}{4}$$

$$\frac{5}{8}$$

$$\frac{7}{5}$$

$$\frac{23}{4}$$

$$\frac{4}{5}$$

$$\frac{3}{25}$$

$$\frac{7}{3}$$

Express each percent as a fraction or mixed number in simplest form and as a decimal.

55%

2%

$$5\frac{1}{2}\%$$

30%

300%

12%

50%

90%

85%

28.2%

0.25%

0.2%

Using Proportions

A **proportion** is an equation stating that two ratios are equal. You can use cross products to solve a proportion.

Example Solve the proportion $\frac{14.1}{c} = \frac{3}{4}$.

$$\frac{14.1}{c} = \frac{3}{4}$$

$$14.1 \cdot 4 = c \cdot 3 \quad \text{Cross products.}$$

$$56.4 = 3c \quad \text{Multiply.}$$

$$\frac{56.4}{3} = \frac{3c}{3} \quad \text{Divide.}$$

$$18.8 = c$$

The solution is 18.8.

Exercises

ALGEBRA Solve each proportion.

1. $\frac{x}{9} = \frac{16}{12}$

2. $\frac{32}{28} = \frac{w}{7}$

3. $\frac{5}{u} = \frac{60}{132}$

4. $\frac{36}{21} = \frac{24}{s}$

5. $\frac{a}{64} = \frac{225}{480}$

6. $\frac{42}{w} = \frac{56}{8}$

7. $\frac{1}{10} = \frac{m}{12}$

8. $\frac{5}{3} = \frac{85}{h}$

9. $\frac{24}{g} = \frac{2}{30}$

10. $\frac{f}{21} = \frac{57}{63}$

11. $\frac{22}{z} = \frac{121}{16.5}$

12. $\frac{2}{3} = \frac{k}{12.6}$

13. $\frac{r}{9} = \frac{5}{20}$

14. $\frac{d}{21} = \frac{1.5}{3.5}$

15. $\frac{46}{57.5} = \frac{360}{q}$

16. $\frac{4.2}{4.8} = \frac{d}{80}$

17. $\frac{1}{c} = \frac{4.5}{11.7}$

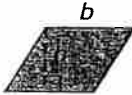
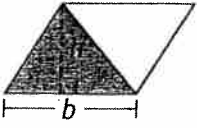
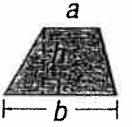
18. $\frac{0.3}{n} = \frac{4.75}{14.25}$

19. $\frac{9.1}{14.7} = \frac{1.3}{p}$

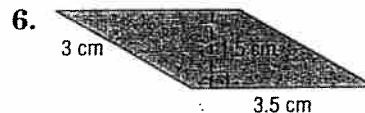
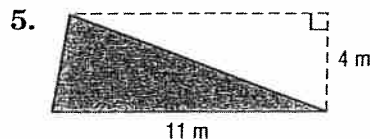
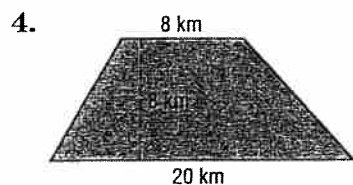
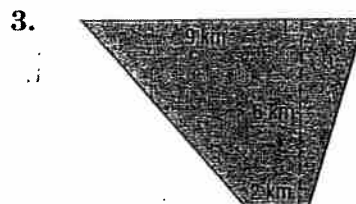
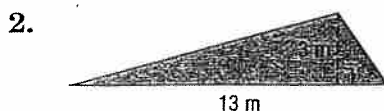
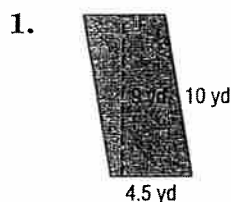
20. $\frac{0.4}{3} = \frac{y}{98.25}$

21. $\frac{v}{33.44} = \frac{1}{3.2}$

Area: Parallelograms, Triangles, and Trapezoids

Shape	Words	Area Formula	Model
Parallelogram	The area of a parallelogram can be found by multiplying the measures of the base and the height.	$A = bh$	
Triangle	A diagonal of a parallelogram separates the parallelogram into two congruent triangles. The area of each triangle is one-half the area of the parallelogram.	$A = \frac{1}{2}bh$	
Trapezoid	A trapezoid has two bases. The height of a trapezoid is the distance between the bases. A trapezoid can be separated into two triangles.	$A = \frac{1}{2}h(a + b)$	

Find the area of each figure.



Find the area of each figure described.

7. triangle: base, 11 m; height, 3 m
8. parallelogram: base, 8 cm; height, 9.5 cm
9. trapezoid: height, 12 yd; bases, 4 yd, 7 yd
10. parallelogram: base, 6.5 ft; height, 12 ft
11. trapezoid: height, 10 m; bases, 3 m, 6 m
12. triangle: base, 7 km; height, 5 km