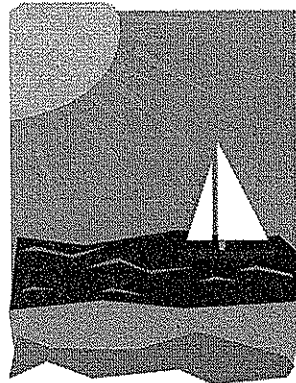


# Summer 2011 Mathematics Packet

## Broad Rock Middle School

### Grade 6-7



Dear Parents and Students,

In this booklet you will find math activities that help to review and maintain math skills learned in sixth grade and prepare your child for seventh grade. These activities are varied and meant to show how much fun and relevant math can be in everyday life. There are activities that can be done throughout vacation.

You will find a number of activities to be completed on the following pages. All work and explanations should be completed on the front or back of the worksheet. The math packet should be returned to your child's **seventh grade math teacher**.

For additional practice, problem solving activities and math games you can use the 6<sup>th</sup> grade *Everyday Math* journals as well as the websites listed at the end of this packet.

Have a great time "sailing into summer with math!"

## Visit math websites for fun and extra practice.

<http://br.skschools.net/Teachers/Rubies/Math>

Scroll down to the yellow box and click the links to

[Online activities with virtual manipulatives](#)

[Math challenges for families with Figure This!](#)

[Interactive arithmetic](#)

[Create a graph](#)

[Telling time](#)

[Generate random numbers with virtual dice](#)

[Games for practicing multiplication tables](#)

[Interactive games for practicing a variety of skills](#)

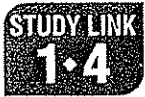
[Math activities on the Internet Public Library](#)

[Fun facts with Factoids](#)

[Multiplication.com](#)

[Sudoku puzzles](#)

[Funbrain Math Arcade](#)



# Median and Mean



Mia's quiz scores are 75, 70, 75, 85, 75, 85, 80, 95, and 80.

Nico's quiz scores are 55, 85, 95, 100, 75, 75, 65, 95, and 75.



- Find each student's mean score. Mia \_\_\_\_\_ Nico \_\_\_\_\_
- Make a stem-and-leaf plot for each student's scores.

### a. Mia's Quiz Scores

Stems (100s and 10s)	Leaves (1s)

### b. Nico's Quiz Scores

Stems (100s and 10s)	Leaves (1s)

- Find each student's median score. Mia \_\_\_\_\_ Nico \_\_\_\_\_
- What is the range of scores for each student? Mia \_\_\_\_\_ Nico \_\_\_\_\_
- Which landmark, mean or median, is the better indicator of each student's overall performance? Explain.

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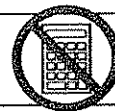
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### Practice

- $\$4.57 + \$1.25 =$  \_\_\_\_\_
- $\$14.49 + \$15.78 =$  \_\_\_\_\_
- $\$19.99 - \$5.75 =$  \_\_\_\_\_
- $\$39.25 - \$18.75 =$  \_\_\_\_\_

**LESSON**  
**2·12**
**Progress**  
**Check 2**

**Part A**

1. Write the digit in each place of the number below.

5,146,702,897,352.6138

- a. ten billions \_\_\_\_\_      b. hundredths \_\_\_\_\_      c. hundred millions \_\_\_\_\_  
 d. thousandths \_\_\_\_\_      e. trillions \_\_\_\_\_      f. tenths \_\_\_\_\_

2. Write the following numbers in standard notation.

- a. 4.6 million \_\_\_\_\_      b. 32.1 trillion \_\_\_\_\_

3. Write each number in number-and-word notation.

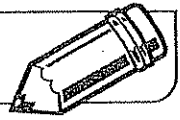
- a. 5,600,000,000 \_\_\_\_\_  
 b. 462,800,000,000,000 \_\_\_\_\_

4. Write the exponent for each of the following numbers.

- a.  $0.001 = 10^{\square}$       b. 1 billion =  $10^{\square}$   
 c.  $10 * 10 * 10 * 10 = 10^{\square}$       d.  $\frac{1}{10} = 10^{\square}$

5. Complete.

- a.  $76,541 * 0.0001 =$  \_\_\_\_\_      b.  $0.421 * 10,000 =$  \_\_\_\_\_  
 c.  $45.7 * 10^{-3} =$  \_\_\_\_\_      d.  $85 = 0.0085 *$  \_\_\_\_\_  
 e.  $2.9 * 10^5 =$  \_\_\_\_\_      f.  $0.7 = 0.007 *$  \_\_\_\_\_

**LESSON**  
**4•5****Math Message**

Add or subtract. Be ready to explain your solution strategies for Problems 6 and 8.

$$\begin{array}{r} 1. \quad 2\frac{1}{5} \\ + 3\frac{3}{5} \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 6\frac{3}{8} \\ + 5\frac{7}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 10\frac{7}{9} \\ - 4\frac{1}{9} \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 5\frac{1}{4} \\ - 3\frac{3}{4} \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad 2\frac{2}{8} \\ + 3\frac{1}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 2\frac{1}{4} \\ + 3\frac{1}{8} \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad 2\frac{7}{12} \\ - 1\frac{6}{12} \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 2\frac{7}{12} \\ - 1\frac{1}{2} \\ \hline \end{array}$$

**STUDY LINK**  
**4•7****Multiplying Mixed Numbers**

Rename each mixed number as a fraction.



$$1. \quad 1\frac{4}{5} \text{ _____}$$

$$2. \quad 2\frac{6}{6} \text{ _____}$$

$$3. \quad 5\frac{2}{3} \text{ _____}$$

$$4. \quad 3\frac{1}{2} \text{ _____}$$

Rename each fraction as a mixed number or whole number.

$$5. \quad \frac{12}{4} \text{ _____}$$

$$6. \quad \frac{33}{8} \text{ _____}$$

$$7. \quad \frac{15}{6} \text{ _____}$$

$$8. \quad \frac{20}{3} \text{ _____}$$

Multiply. Write each answer in simplest form. If possible, write answers as mixed numbers or whole numbers.

$$9. \quad 5 * \frac{3}{5} = \text{_____}$$

$$10. \quad 2\frac{1}{3} * 1\frac{4}{5} = \text{_____}$$

$$11. \quad \frac{5}{6} * 2\frac{1}{2} = \text{_____}$$

$$12. \quad 1\frac{1}{6} * 4\frac{2}{3} = \text{_____}$$

$$13. \quad 3\frac{3}{4} * 2\frac{1}{8} = \text{_____}$$

$$14. \quad 7\frac{1}{2} * 2\frac{2}{3} = \text{_____}$$



**STUDY LINK**  
**6•6**

# Using Order of Operations



Please Excuse My Dear Aunt Sally  
Parentheses Exponents Multiplication Division Addition Subtraction



Evaluate each expression.

1.  $5 + 6 * 3 - 2 =$  \_\_\_\_\_

2.  $4 * 9 / 2 + (-4 + 6) =$  \_\_\_\_\_

3.  $\frac{1}{2} + \frac{5}{8} * \frac{1}{2} \div 2 =$  \_\_\_\_\_

4.  $(2.3 + 7.8) * 4 + 3 =$  \_\_\_\_\_

5.  $4^2 + 7(3 - (-5)) =$  \_\_\_\_\_

6.  $((2 * 4) + 3) * 6 / 2 =$  \_\_\_\_\_

Evaluate the following expressions for  $m = -3$ .

7.  $-\frac{m}{m} + 6 - 4 =$  \_\_\_\_\_

8.  $((4 + 11) * -3) / 9 * (-m) =$  \_\_\_\_\_

9.  $m^2 + (-m^3) - 8 =$  \_\_\_\_\_

10.  $\frac{1}{2} * m \div \frac{5}{4} + \frac{3}{5} - \frac{1}{10} =$  \_\_\_\_\_

## Practice

Find each missing number.

11. 3 gal 7 qt = 4 gal \_\_\_\_\_ qt

12. 5 gal 3 qt = \_\_\_\_\_ qt

13. 13 pt = \_\_\_\_\_ qt \_\_\_\_\_ pt

14. 10 c = \_\_\_\_\_ qt \_\_\_\_\_ pt

15. 18 qt = \_\_\_\_\_ gal \_\_\_\_\_ pt

### Units of Capacity

2 cups (c) = 1 pint (pt)

2 pints = 1 quart (qt)

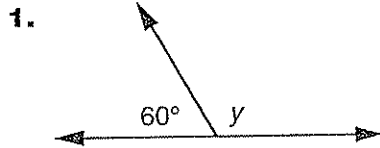
4 quarts = 1 gallon (gal)

**STUDY LINK**  
**5.2**

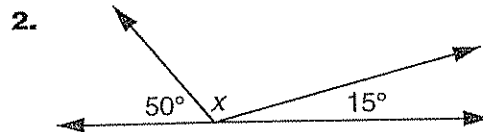
# Angle Relationships



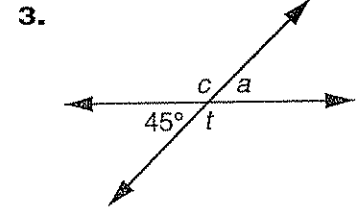
Find the following angle measures. Do not use a protractor.



$m\angle y = \underline{\hspace{2cm}}$



$m\angle x = \underline{\hspace{2cm}}$

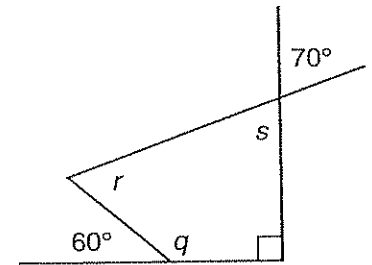


$m\angle c = \underline{\hspace{2cm}}$

$m\angle a = \underline{\hspace{2cm}}$

$m\angle t = \underline{\hspace{2cm}}$

4.  $m\angle q = \underline{\hspace{2cm}}$      $m\angle r = \underline{\hspace{2cm}}$      $m\angle s = \underline{\hspace{2cm}}$



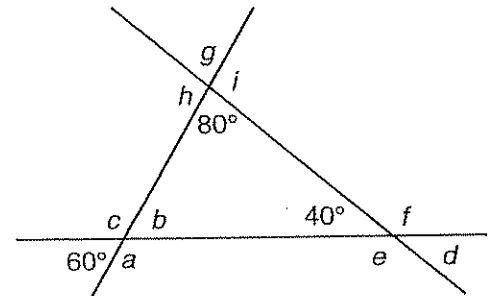
5.  $m\angle a = \underline{\hspace{2cm}}$      $m\angle b = \underline{\hspace{2cm}}$

$m\angle c = \underline{\hspace{2cm}}$      $m\angle d = \underline{\hspace{2cm}}$

$m\angle e = \underline{\hspace{2cm}}$      $m\angle f = \underline{\hspace{2cm}}$

$m\angle g = \underline{\hspace{2cm}}$      $m\angle h = \underline{\hspace{2cm}}$

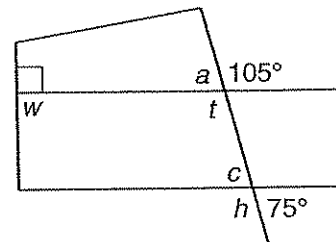
$m\angle i = \underline{\hspace{2cm}}$



6.  $m\angle w = \underline{\hspace{2cm}}$      $m\angle a = \underline{\hspace{2cm}}$

$m\angle t = \underline{\hspace{2cm}}$      $m\angle c = \underline{\hspace{2cm}}$

$m\angle h = \underline{\hspace{2cm}}$

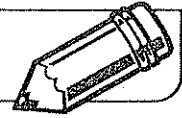


**Practice**

7.  $\frac{3}{4}$  of 16 = \_\_\_\_\_    8.  $\frac{3}{5}$  of 50 = \_\_\_\_\_    9.  $\frac{1}{3}$  of 330 = \_\_\_\_\_

**LESSON**  
**7•7**

# A Coin-Flipping Experiment



1. Draw a tree diagram to show all possible outcomes when you flip a coin 4 times.

2. How many possible outcomes are there? \_\_\_\_\_

3. What is the probability that the coin will land TAILS once and HEADS 3 times? \_\_\_\_\_

4. What is the probability that the coin will land TAILS the same number of times it lands HEADS? \_\_\_\_\_

5. What is the probability that the coin will land on the same side all 4 times? \_\_\_\_\_

6. What is the probability that the coin will land TAILS more often than HEADS? \_\_\_\_\_

7. What is the probability that the coin will land TAILS 75 percent of the time? \_\_\_\_\_

8. What is the probability that the coin will land HEADS *at least once*? \_\_\_\_\_

### Optional Experiment

9. Do the coin-flipping experiment several times and record the actual results. Combine your results with those of your classmates. Do the actual results come close to the predicted results?

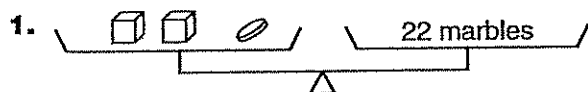
Actual Results \_\_\_\_\_

Conclusions \_\_\_\_\_

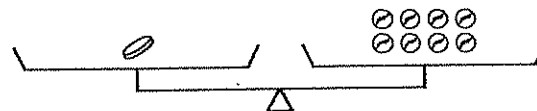
**LESSON**  
**6•9**
**Pan-Balance Problems**


Problems 1 and 2 each consist of two parts. You need to solve one part before you have enough information to solve the other part. You must figure out which statement to complete first—it may be either the first or the second statement.

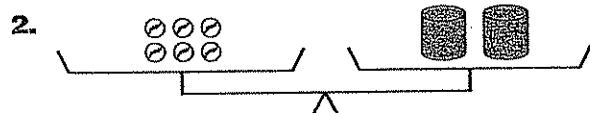
In each of the figures for Problems 1–3, the two pans are balanced.



One cube weighs as much as \_\_\_\_\_ marbles.



One coin weighs as much as \_\_\_\_\_ marbles.



One marble weighs as much as \_\_\_\_\_ paper clips.



One can weighs as much as \_\_\_\_\_ paper clips.

**STUDY LINK**  
**9•6**
**Expressions and Equations**


Solve.

1.  $3x + 9 = 30$        $x =$  \_\_\_\_\_

2.  $73 = \frac{1}{2}(108 + f)$        $f =$  \_\_\_\_\_

3.  $55 = (9 - d) * 11$        $d =$  \_\_\_\_\_

4.  $(m * 15) + (m * 6) = 42$        $m =$  \_\_\_\_\_

Simplify these expressions by combining like terms.

5.  $8y + 27 + 6y + (-4)$  \_\_\_\_\_

6.  $7b + 17 - 9b + 15$  \_\_\_\_\_

7.  $3f - 80 + 25 - 10k$  \_\_\_\_\_

8.  $240 + 5g + 3(10g - 5)$  \_\_\_\_\_

# Scale Drawings

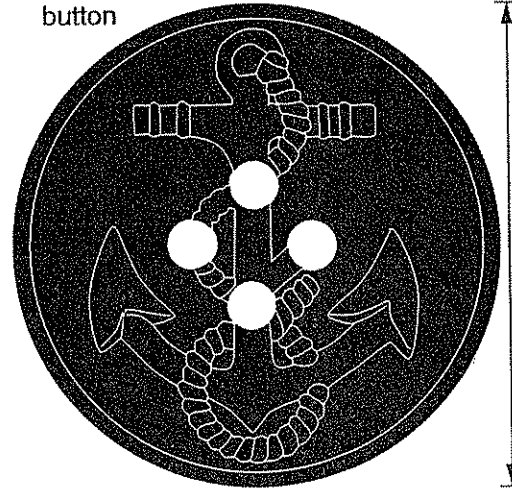


Measure the object in each drawing to the nearest millimeter. Then use the size-change factor to determine the actual size of the object.

Size-change Factor:  $\frac{\text{changed length}}{\text{actual length}}$

1. a. Diameter in drawing: \_\_\_\_\_  
 b. Actual diameter: \_\_\_\_\_

Size Change	Size-change Factor
Scale 2:1	



button

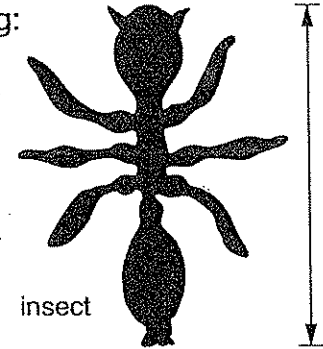
2. a. Height in drawing: \_\_\_\_\_  
 b. Actual height: \_\_\_\_\_



glue bottle

Size Change	Size-change Factor
$\frac{1}{4}X$	

3. a. Length in drawing: \_\_\_\_\_  
 b. Actual length: \_\_\_\_\_

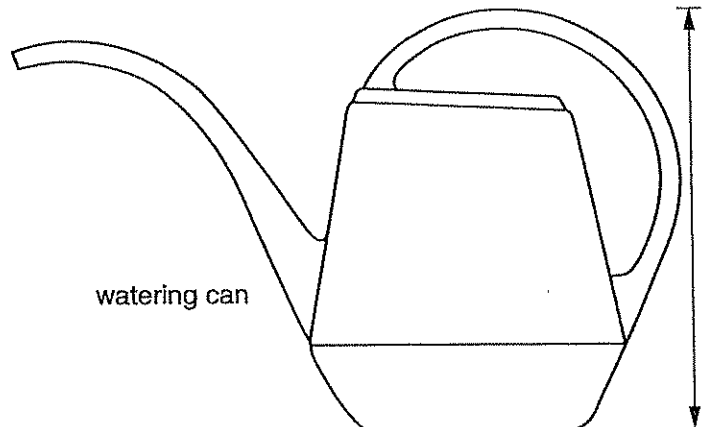


insect

Size Change	Size-change Factor
Scale 3:1	

4. a. Height in drawing: \_\_\_\_\_  
 b. Actual height: \_\_\_\_\_

Size Change	Size-change Factor
Scale 1:3	



watering can



Write  $<$ ,  $>$ , or  $=$ .

1.  $\frac{3}{11}$  \_\_\_\_\_ 30%
2.  $\frac{18}{49}$  \_\_\_\_\_ 35%
3.  $\frac{28}{35}$  \_\_\_\_\_ 80%
4.  $\frac{15}{24}$  \_\_\_\_\_ 60%
5. 30% \_\_\_\_\_  $\frac{9}{34}$
6. 45% \_\_\_\_\_  $\frac{4}{7}$

7. On the back of this page, explain how you got your answer to Problem 4.

Circle the percent that is the best estimate for each fraction.

- |                   |     |     |     |      |
|-------------------|-----|-----|-----|------|
| 8. $\frac{3}{17}$ | 25% | 50% | 75% | 100% |
| 9. $\frac{9}{29}$ | 25% | 50% | 75% | 100% |
| 10. $\frac{6}{7}$ | 25% | 50% | 75% | 100% |
| 11. $\frac{5}{9}$ | 25% | 50% | 75% | 100% |

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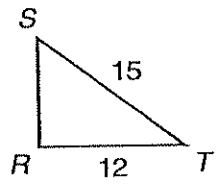
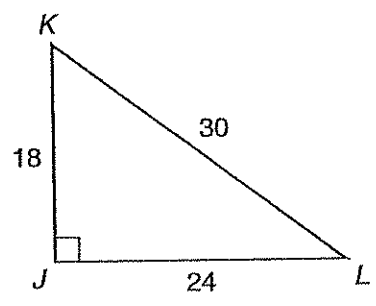
STUDY LINK  
8·10

## Similar Polygons

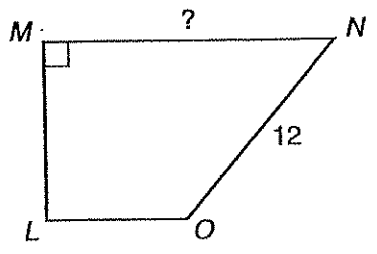
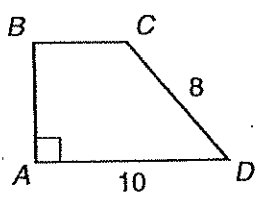


1. Triangles  $JKL$  and  $RST$  are similar.

- a. Find the ratio  $KL:ST$ . \_\_\_\_\_
- b.  $m\angle R =$  \_\_\_\_\_
- c. The length of  $\overline{RS} =$  \_\_\_\_\_  
 $\frac{\text{perimeter of } \triangle JKL}{\text{perimeter of } \triangle RST} =$  \_\_\_\_\_



2. Quadrangles  $ABCD$  and  $MLON$  are similar.



- a. The length of  $\overline{MN} =$  \_\_\_\_\_
- b. The size-change factor:  $\frac{\text{large trapezoid}}{\text{small trapezoid}} =$  \_\_\_\_\_ X