KCS @ home
Summer Edition

Sixth Grade
Math

This packet includes four sections that cover the major content of 6th grade math. Each section includes four pages of notes and practice for each topic. For additional support, visit KCS TV on YouTube for instructional videos that accompany each section.

The following content is included in this packet:

	Topic			
	I. Area of Polygons	**II. Ratio Reasoning**	**III. Rational Numbers**	**IV. Equations and Expressions**
Activity 1	Area of Quadrilaterals	Rates	Dividing Mixed Numbers	Order of Operations
Activity 2	Area of Triangles	Ratios, Rates, Tables, and Graphs	Adding and Subtracting Decimals	Addition and Subtraction Equations
Activity 3	Solving Area Problems	Solving Problems with Proportions	Multiply Decimals	Evaluating Expressions
Activity 4	Area of Polygons	Understanding Percent	Dividing Decimals	Generating Equivalent Expressions

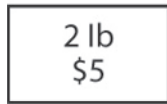| Section II Activity 1	**Rates**

You can divide to find a unit rate or to determine a best buy.
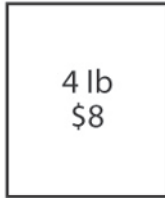
A. Find the unit rate.
Karin bikes 35 miles in 7 hours.
$35 \div 7 = 5$ mph

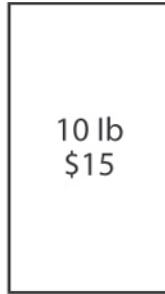**B.** Find the best buy.

2 lb
$5

4 lb
$8

10 lb
$15

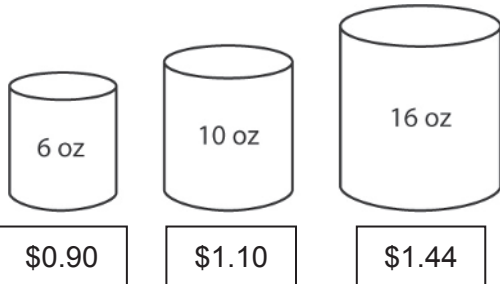$5 \div 2 = \$2.50$ per lb $8 \div 4 = \$2.00$ per lb $15 \div 10 = \$1.50$ per lb

BEST BUY!

Divide to find each unit rate. Show your work.

1. Jack shells 315 peanuts in 15 minutes. _____

2. Sharmila received 81 texts in 9 minutes. _____

3. Karim read 56 pages in 2 hours. _____

Find the best buy. Show your work.

4.

6 oz   10 oz   16 oz

$0.90 $1.10 $1.44

_____

_____

5.

Bread	Weight (oz)	Cost ($)
Whole wheat	16	2.24
Pita	20	3.60
7-grain	16	2.56

_____

_____

_____

_____

**Section II
Activity 2** | **Ratios, Rates, Tables, and Graphs**

A **ratio** shows a relationship between two quantities.

Ratios are **equivalent** if they can be written as the same fraction in lowest terms.

A **rate** is a ratio that shows the relationship between two different units of measure in lowest terms.

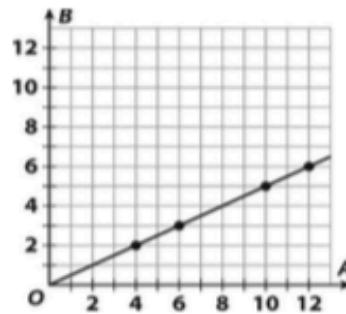You can make a table of equivalent ratios. You can graph the equivalent ratios.

A	4	6	10	12
B	2	3	5	6

$$\frac{4}{2} = \frac{2}{1} \qquad \frac{6}{3} = \frac{2}{1}$$

$$\frac{10}{5} = \frac{2}{1} \qquad \frac{12}{6} = \frac{2}{1}$$

The table shows information about the packets of flavoring added to an amount of water to make soup.

Packets of Flavoring	2	5		10	
Ounces of Water	24		84		144

1. Find the rate of ounces of water needed for each packet of flavoring. Show your work.

   $$\frac{\text{ounces of water}}{\text{packets of flavoring}} = \underline{\hspace{5cm}}$$

2. Use the unit rate to help you complete the table.

3. Graph the information in the table.

4. How much water should be added to 23 packets of flavoring?

   _____

5. Does the point (9.5, 114) make sense in this context? Explain.

   _____

   _____

   _____
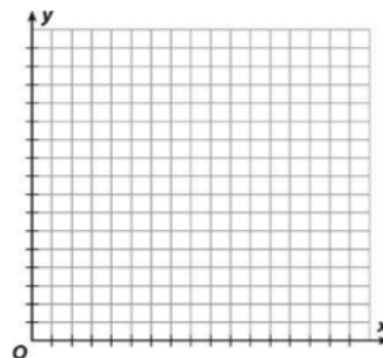
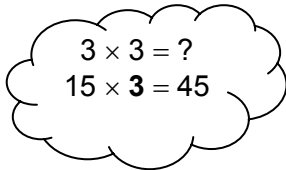| Section II Activity 3 | **Solving Problems with Proportions** |

You can solve problems with proportions in two ways.

A. Use equivalent ratios.

Hanna can wrap 3 boxes in 15 minutes.
How many boxes can she wrap in 45 minutes?

$$\frac{3}{15} = \frac{}{45}$$

$3 \times 3 = ?$
$15 \times \mathbf{3} = 45$

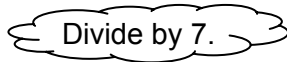$$\frac{3 \bullet 3}{15 \bullet 3} = \frac{9}{45}$$

Hanna can wrap 9 boxes in 45 minutes.

B. Use unit rates.

Dan can cycle 7 miles in 28 minutes.
How long will it take him to cycle 9 miles?

$$\frac{28\ min}{7\ mi} = \frac{}{1\ mi}$$

Divide by 7.

$$\frac{28}{7} = \frac{28 \div 7}{1} = \frac{4}{1}\text{, or 4 minutes per mile}$$

To cycle 9 miles, it will take Dan 9×4, or 36 minutes.

Solve each proportion. Use equivalent ratios or unit rates. Round to the nearest hundredth if needed.

1. Twelve eggs cost $2.04. How much would 18 eggs cost?

   _____

2. Seven pounds of grapes cost $10.43. How much would 3 pounds

   cost? _____

3. Roberto wants to reduce a drawing that is 12 inches long by 9 inches
   wide. If his new drawing is 8 inches long, how wide will it be?

   _____

Section II
Activity 4 | Understanding Percent

A. A percent is a ratio of a number to 100. Percent means "per hundred."

To write 38% as a fraction, write a fraction with a denominator of 100.

$$\frac{38}{100}$$

Then write the fraction in simplest form.

$$\frac{38}{100} = \frac{38 \div 2}{100 \div 2} = \frac{19}{50}$$

So, 38% = $\frac{19}{50}$.

B. To write 38% as a decimal, first write it as fraction.

$$38\% = \frac{38}{100}$$

$\frac{38}{100}$ means "38 divided by 100."

$$\begin{array}{r} 0.38 \\ 100\overline{)38.00} \\ -\underline{300} \\ 800 \\ -\underline{800} \\ 0 \end{array}$$

So, 38% = 0.38.

Write each percent as a fraction in simplest form.

1. 43%   2. 72%   3. 88%   4. 35%

   _____   _____   _____   _____

Write each percent as a decimal.

5. 64%   6. 92%   7. 73%   8. 33%

   _____   _____   _____   _____

Answer Key

II. Ratio Reasoning
Activity 1: Rates

1. $315 \div 15 = 21$ peanuts a minute
2. $81 \div 9 = 9$ texts per minute
3. $56 \div 2 = 28$ pages per hour
4. 6 oz: $\$0.90 \div 6 = \$0.15$, 10 oz: $\$1.10 \div 10$
   $= \$0.11$; 16 oz: $\$1.44 \div 16 = \$0.09$; The
   16-oz can is the best buy.
5. $\$2.24 \div 16 = \$0.14$; $\$3.60 \div 20 = \$0.18$;
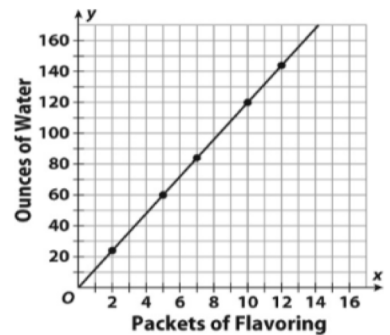 $\$2.56 \div 16 = \$0.16$; whole wheat

Activity 2: Ratios, Rates, Tables, and Graphs

1. $\dfrac{\text{ounces of water}}{\text{packets of flavoring}} =$

   $\dfrac{24 \text{ oz}}{2 \text{ packets}} = \dfrac{12 \text{ oz}}{1 \text{ packet}} =$

   12 oz of water per packet

2.

Packets of Flavoring	2	5	7	10	12
Ounces of Water	24	60	84	120	144

3.

4. 276 oz
5. Yes. You can add nine and a half packets of flavoring to 114 oz of water.

Activity 3: Solving problems with Proportions

1. $\$3.06$
2. $\$4.47$
3. 6 in.

Activity 4: Understanding Percents

1. $\dfrac{43}{100}$

2. $\dfrac{18}{25}$

3. $\dfrac{22}{25}$

4. $\dfrac{7}{20}$

5. 0.64
6. 0.92
7. 0.73
8. 0.33