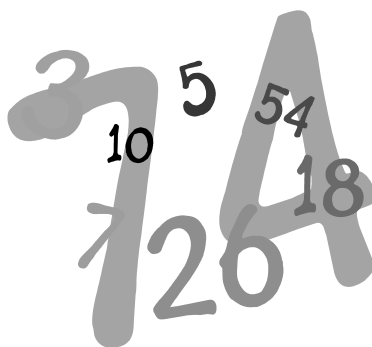


*What You Need  
to Know Going  
into 6th Grade*



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**Summer Math Booklet**



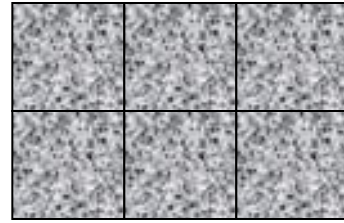
## Multiplication Combinations

Multiply each number in the first column of the table with the number at the top. For example, find the product of  $6 \times 8$  for the first blank space in Table A.

In Tables C and D, write a number at the top for a group of combinations you need to practice.

Circle any combination that you don't know immediately so you can work on them a little more.

<b>Table A</b>		<b>Table B</b>		<b>Table C</b>		<b>Table D</b>	
x 8		x 7					
6		4		10		12	
5		6		5		9	
3		10		12		8	
7		8		7		7	
11		3		4		2	
9		5		2		11	
2		11		8		3	
8		3		6		4	
10		12		3		10	
4		2		12		5	
12		7		9		6	



## Number Puzzles

- Find two numbers that fit each clue.
- Draw rectangles and label the dimensions to show that your numbers fit the clue.
- List other numbers that also fit the clue.

1. This number of tiles will make a rectangle that is 3 tiles wide.

Number: \_\_\_\_\_

Number : \_\_\_\_\_

Rectangle:

Rectangle:

What other numbers fit this clue? \_\_\_\_\_

2. This number of tiles will make a rectangle that is 7 tiles wide.

Number: \_\_\_\_\_

Number : \_\_\_\_\_

Rectangle:

Rectangle:

What other numbers will fit this pattern? \_\_\_\_\_

3. This number of tiles will make only one rectangle.

Number: \_\_\_\_\_

Number: \_\_\_\_\_

Rectangle:

Rectangle:

What other number fits this clue: \_\_\_\_\_

4. This number of tiles will make a square.

Number: \_\_\_\_\_

Rectangle: \_\_\_\_\_

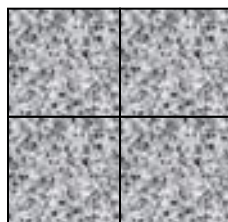
Number : \_\_\_\_\_

Rectangle: \_\_\_\_\_

What other numbers fit this clue? \_\_\_\_\_

5. There are some numbers that can be made into only one rectangle.  
Find all of these numbers up to 50.

6. There are some numbers that can make a square. Find all of these  
numbers up to 100.



## Factors and Multiples



1. List all of the *factors* of 56.
2. List 5 *multiples* of 56.
3. Explain the difference between a **factor** and a **multiple**.
4. Which number is **NOT** a factor of 42?  
A. 4            B. 14            C. 7            D. 8
5. Which number **IS** a multiple of 42?  
A. 129            B. 84            C. 123            D. 215



## Computation Practice

Solve this problem in two different ways. Be sure to show how you got your answers.

$$2,058 + 978 = \underline{\hspace{2cm}}$$

First way:

Second way:



## Ways of Multiplication

Solve both of these problems in a different way. Show all of your work.

1.  $17 \times 26$

2.  $25 \times 47$



## Mystery Numbers

Using the clues, discover the mystery number and write it in the blank provided.

This number is odd.	This number is greater than 50.
This number is a multiple of 3.	The sum of the digits is 12.

The mystery number is

\_\_\_\_\_.

This number is less than 250.	This number is a multiple of 12.
This number has three digits.	The sum of the digits is 6.

The mystery number is

\_\_\_\_\_.

This number is odd.	This number is greater than 200.
This number is a square number.	5 is a factor of this number.

The mystery number is

\_\_\_\_\_.

This number is a multiple of 14.	This is a three - digit number.
4 is a factor of this number.	This number is greater than 150.

The mystery number is

\_\_\_\_\_.

This number is a triangular number.	This number is less than 50.
This number has 7 as a factor.	This number is a multiple of 3.

The mystery number is

\_\_\_\_\_.







## **Packing Groceries**

There are 218 apples that have to be packaged into boxes for the neighborhood grocery stores. Each box contains one dozen apples. How many boxes will be needed?

\_\_\_\_\_boxes

Show how you figured out the correct number of boxes.

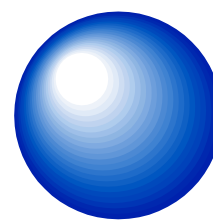
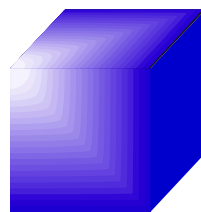
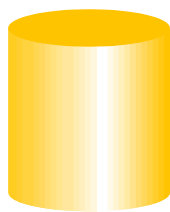
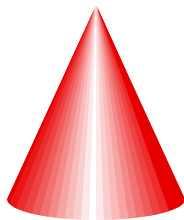
## Measurement and Volume

Look around your home for any recorded measurements of volume. (**Volume** is a measure of the space inside a solid figure.)

Look on household items (refrigerators and freezers), in manuals, on other written materials (water bill), or on any item that might have a measurement of volume recorded on it (the trunk space of the car.)

Record any measurements that are given in **cubic units**. Write down both the **number** of cubic units and the **kind** of cubic units used.

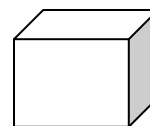
This Is Where My Measurement Was Found.	Number of Cubic Units	Kind Of Cubic Units



## Changing Dimensions

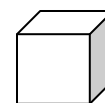
Find the dimensions of a box that will hold **half** as many cubes as a box that is 2 by 6 by 8. (The original box holds 8 layers of 2 rows of 6 cubes.)

Volume of the original box: \_\_\_\_\_



Volume of the new box: \_\_\_\_\_

Dimensions of a new box: \_\_\_\_\_



Explain how you found the dimensions of the new box.

Describe a strategy to find the dimensions of any rectangular box whose volume is **doubled**. Remember, it should work for any box.

## Cubes Anyone?



You have a box that is 2 units by 4 units by 3 units. (A cube is one cubic unit.) How many cubic units can fit into this box?

---

Explain how you know.

The factory wants you to design a box that will fit 2 times as many cubes as the original box listed above. Explain how you figured out the new dimensions.



## Up For Division?

Write a story problem that represents the division expression. Then solve the problem.

- a. Write a story problem that represents:

$$918 \div 34$$

- b. Solve  $918 \div 34$ . Show your solution clearly.

## Division Practice ÷

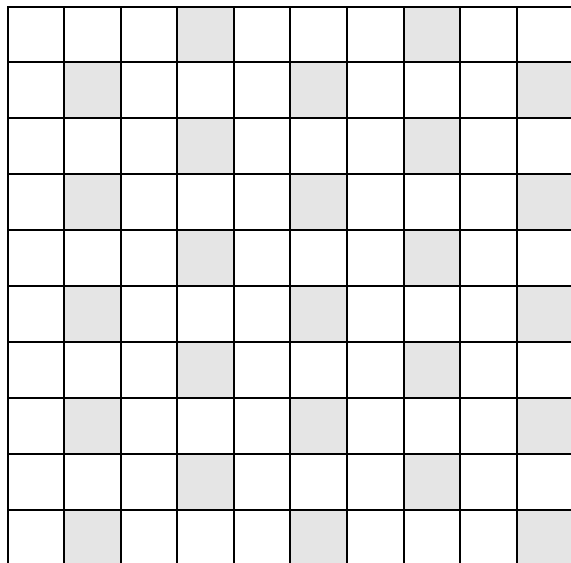
Solve each division problem below. Then write the related multiplication combination.

Division Problem	Multiplication Combination
$80 \div 10 = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
$96 \div 12 = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
$56 \div 8 = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
$63 \div 7 = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
$54 \div 9 = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
$108 \div 12 = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
$77 \div 7 = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
$20 \div 5 = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
$28 \div 7 = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$
$49 \div 7 = \underline{\hspace{2cm}}$	$\underline{\hspace{2cm}} \times \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

## Name the Shaded Portion

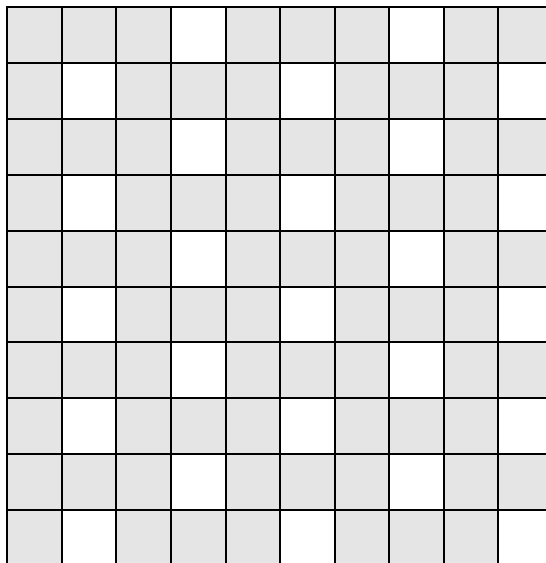
Below each grid, name **three** fractions to describe the portion that is shaded.

### Grid 1



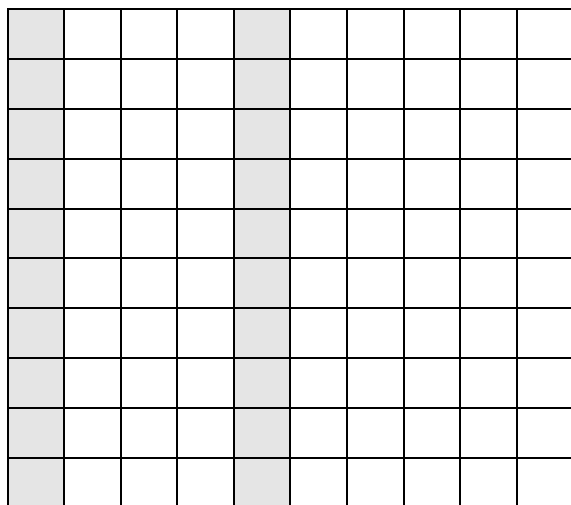
Fractions: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

### Grid 2



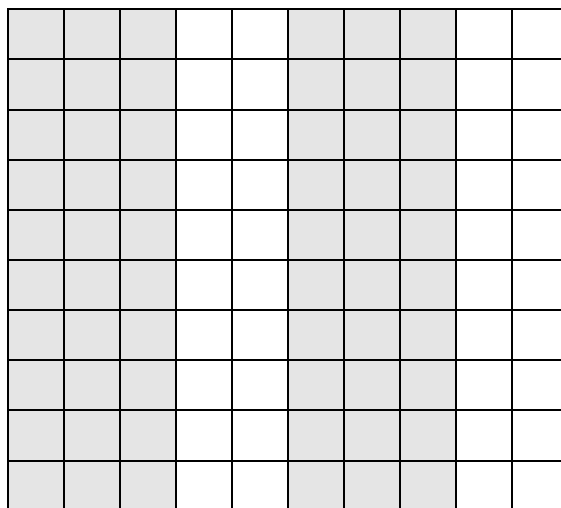
Fractions: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

### Grid 3



Fractions \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

### Grid 4



Fractions: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

**\*Challenge:** Can you name the **percent** for each grid?

Grid 1: \_\_\_\_\_ Grid 2: \_\_\_\_\_ Grid 3: \_\_\_\_\_ Grid 4: \_\_\_\_\_



## Fractions and Percents at School

Solve the problems.

1. In a class of 30 students, 50% went to gym.  
How many went to gym? \_\_\_\_\_
2. At the same time, 5 of the students helped with work in the  
in the classroom.  
What fractional part of the class is that? \_\_\_\_\_  
  
What percentage is that? \_\_\_\_\_
3. The rest of the students went to eat lunch in the cafeteria.  
What fractional part of the class went to lunch? \_\_\_\_\_  
  
What percent is that? \_\_\_\_\_
4. The next day  $66\frac{2}{3}\%$  of the students brought cans of food for  
the food drive.  
How many students brought cans of food? \_\_\_\_\_
5. A Social Studies study guide had 20 questions. Taylor  
answered 15 of them correctly.  
What percent of the questions did she answer correctly? \_\_\_\_\_
6. Brett answered 25% of the questions correctly.  
How many questions did Brett answer correctly? \_\_\_\_\_



## Which Is Greater?



Solve the problems below and explain or show how you determined the answer.

1. Which is greater?  $\frac{5}{12}$  or  $\frac{4}{6}$

2. Which is greater?  $\frac{7}{8}$  or  $\frac{8}{7}$

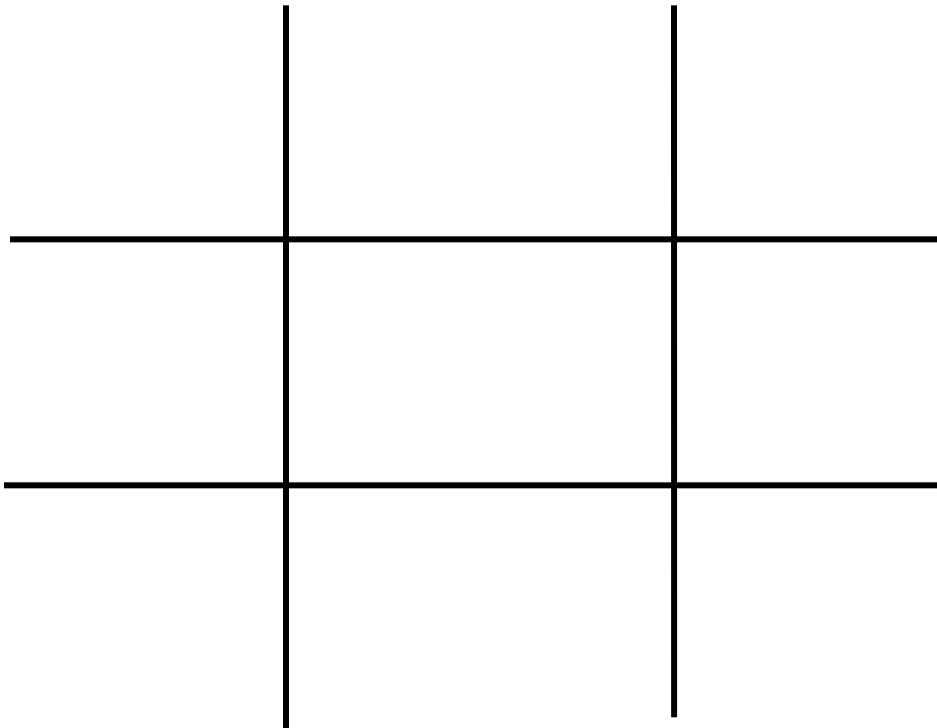
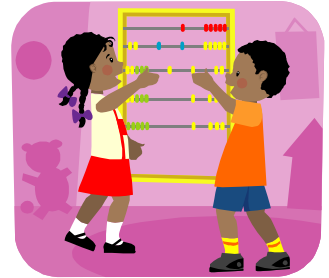
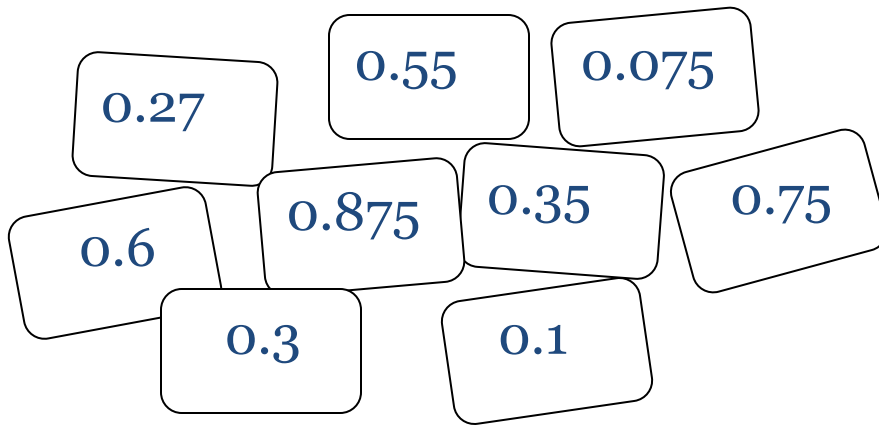
3. Which is greater?  $\frac{8}{9}$  or  $\frac{5}{6}$

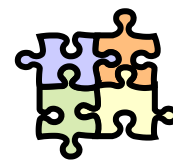
4. Which is greater?  $\frac{3}{8}$  or  $\frac{1}{3}$



## Smaller To Larger

Arrange the decimals below onto the grid so that each row from left to right, and each column from top to bottom is in increasing order.





## Counting Puzzles

Solve these problems. Use clear and concise notation in your solutions.

1. Mr. Simon's class has 31 students and counts by 35's. Each person says only one number. If the first person says 35, what does the last person say?
  
  
  
  
  
  
  
  
  
  
2. Mrs. Nolte's class counts by 25's. Each person says only one number. The first person says 25, and the last person says 725. How many students are in Mrs. Nolte's class?
  
  
  
  
  
  
  
  
  
  
3. Mrs. Bodnar's class has 29 students. They count by a certain number, and the last person says 986. If each person says only one number, by what number are they counting?
  
  
  
  
  
  
  
  
  
  
4. Ms. Reese's class has 28 students. They count by 65's, and each person says only one number. If the first student says 65, what does the last student say?



## FAMILY CONNECTION

### *Building Your Child's Math Skills Together*



*Please sign each activity that you and your child complete.*

#### **PLACE THE DIGIT**

**Materials:** number cards for 0-9



**Step 1:** Mix and place the number cards face down. Have your child pick the top card while you name a place from ***ones*** to ***hundred billions***.

**Step 2:** Have your child write a number that includes the digit on the cards in the place you named. Work together to check the answer. Alternate roles and repeat until all of the cards have been used.

**Variation:** Increase the difficulty of the game by including the digit on the card in two or more places in a single number.

*We completed this family activity.*

Adult signature \_\_\_\_\_

## METRIC LENGTH

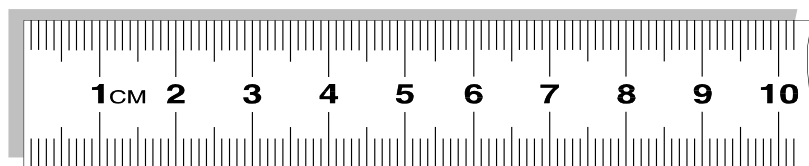
**Materials:** centimeter ruler

Have your child measure an object, such as a piece of spaghetti, to the nearest centimeter. Help him or her convert the length to millimeters or meters. Repeat the activity with other objects.

$$1 \text{ meter} = 100 \text{ centimeters}$$

$$1 \text{ centimeter} = 10 \text{ millimeters}$$

Object	Length in centimeters	Length in millimeters or meters



*We completed this family activity.*

Adult signature \_\_\_\_\_

## MEGA-MAIL

Your child can practice finding areas by calculating the area of the mail you receive in one day. Encourage your child to estimate the total area of each envelope in square inches before measuring the length and width of each. Have your child complete the chart and round all length measurements to the nearest half-inch. After completing the chart, add to find the total area.

Envelope	Length (in.)	Width (in.)	Area (in. <sup>2</sup> ) <i>(length x width)</i>

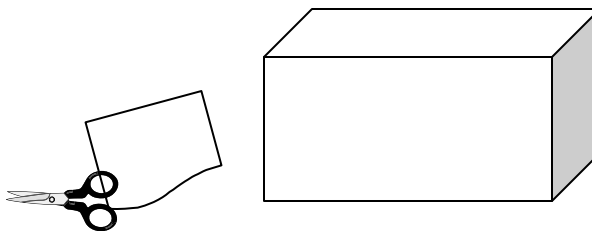


*We completed this family activity.*

Adult signature \_\_\_\_\_



## SURFACE AREA



**Materials:** medium-sized box, scrap paper or newspaper, scissors, ruler

Remind your child that the surface area of a prism is *the sum of the areas of all its faces*. Have your child cut 6 pieces of paper to cover each of the faces of the box. Have him or her measure the length and width of each piece, then calculate the area (length x width). Ask your child to identify any patterns he or she sees. Your child should explain that the opposite faces have the same area. Work together to add the 6 areas to find the total surface area.

*We completed this family activity.*

Adult signature \_\_\_\_\_



## FUN WITH FRACTIONS

**Materials:** magazines, newspapers

Collect and identify fractions and mixed numbers in reading materials, stores, or other locations. You can find fractions, for example, in recipes, on gas station signs, and in some business pages. Then have your child classify each fraction as being less than  $\frac{1}{2}$ , between  $\frac{1}{2}$  and 1, or greater than 1.

*We completed this family activity.*

Adult signature \_\_\_\_\_

## FRACTION FRENZY



**Materials:** number cube

**Step 1:** Each player creates a fraction by rolling the number cube two times. The lesser number goes in the numerator and the greater number goes in the denominator.

**Step 2:** Compare the fractions. The player with the greater fraction scores one point. Play continues until one player reaches 10 points.

*We completed this family activity.*

Adult signature \_\_\_\_\_

## RECIPES

Have your child locate a recipe. Read it together and discuss the quantities given. Ask your child to calculate the amount of ingredients needed to double the recipe and then to quintuple it (multiply by 5). Also, challenge your child to rewrite the amount of ingredients needed to cut the recipe in half.



*We completed this family activity.*

Adult signature \_\_\_\_\_

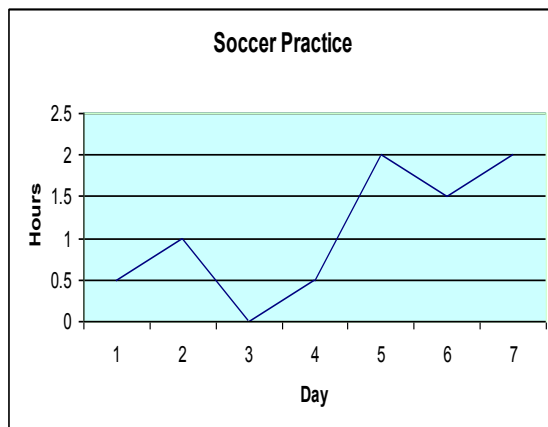
## FAMILY MATTERS

**Materials:** paper or graph paper

**Step 1:** Have your child record how much time he or she spends on an activity each day for one week. (*doing chores, watching TV, playing outside, etc.*)

**Step 2:** Help your child make a line graph of the data. Include a title and labels.

**Step 3:** Ask your child to summarize the patterns in the graph. Have your child ask you questions that can be answered using the graph.



**Step 4:** You may wish to create other graphs, such as a circle graph showing how your child spends his or her allowance, or a bar graph showing family birthdays by months.

*We completed this family activity.*

Adult signature \_\_\_\_\_



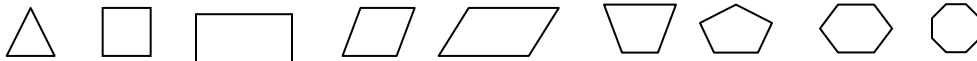
## PRODUCT PRODUCTS

When shopping, ask your child to choose a product and locate the price. Have him or her find the cost of 10 of the product. Repeat for 100 and 1,000 of the product.

*We completed this family activity.*

Adult signature \_\_\_\_\_

## THE PRESENCE OF POLYGONS



triangle square rectangle rhombus parallelogram trapezoid pentagon hexagon octagon

**Step 1:** Discuss the properties of the nine polygons on this page. Identify the number of sides and discuss what makes each figure unique.

**Step 2:** Have your child find an example of each polygon inside or outside of your home.

**Step 3:** Have him or her place a checkmark on the figure on this page to record that the polygon has been found. Continue the activity until all of the polygons are checked.

Polygon – a closed figure with straight sides

*We completed this family activity.*

Adult signature \_\_\_\_\_