



MULTIPLICATION AND DIVISION

4

Name: Key Date: _____ Period: _____

SECTION 4.3 APPLICATIONS OF MULTIPLICATION

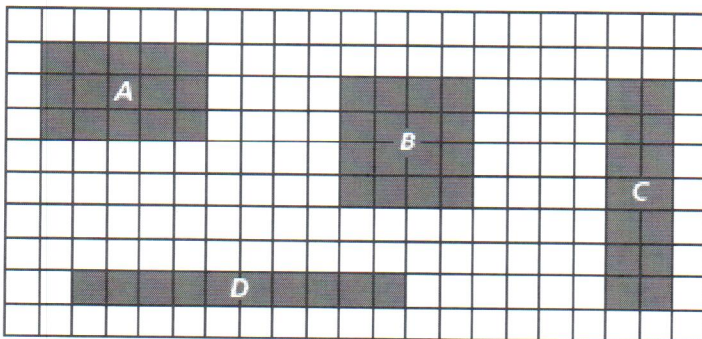
VOCABULARY

DEFINITION	EXAMPLE
Area: <i>number of unit squares needed to cover a figure</i>	
Perimeter: <i>the length around a figure</i>	

Big Idea: How do changes in the dimensions of a rectangle affect, or not affect, its area and perimeter?

EXPLORATION

Looking at rectangles A, B, C, and D, which is the biggest? Explain your answer.



Answers will vary.

DISCUSSION

There are several ways to think about what “biggest” means. One way to measure “biggest” is to find the area by counting the number of unit squares that are needed to cover each figure.

1. What are the areas of rectangles A, B, C, and D?

Area of A = $5 \cdot 3 = 15$ u. sq.
 Area of B = $4 \cdot 4 = 16$ sq. u.
 Area of C = $2 \cdot 7 = 14$ u.²
 Area of D = $10 \cdot 1 = 10$ square units

2. Which one has the largest area?

B

3. Does this agree with the rectangle you chose?

Answers will vary.

Another way to measure the size of a rectangle is to add the lengths of all the sides. This sum is called the **perimeter**. Its name comes from the Greek words *peri*, meaning “around,” and *metron*, meaning “measure.”

4. What are the perimeters of the 4 rectangles?

Perimeter of A = $5 + 3 + 5 + 3 = 16$ u.
 B = $4 + 4 + 4 + 4 = 16$ units
 C = $2 + 7 + 2 + 7 = 18$ u.
 D = $10 + 1 + 10 + 1 = 22$ u.

5. Which one has the largest perimeter?

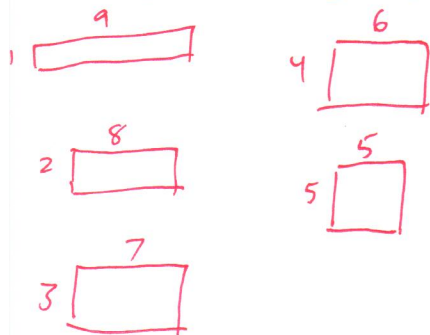
D

6. Does this agree with the rectangle you chose?

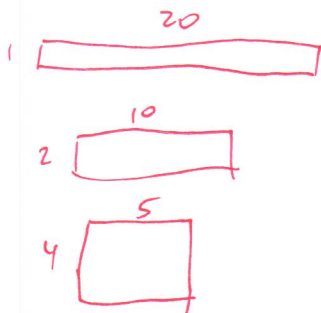
Answers will vary.

PRACTICE EXERCISES

1. Draw as many different rectangles as you can that have a perimeter of 20 units.



2. Draw as many rectangles as you can that have area of 20 square units.



CHALLENGE: If the perimeter of a rectangle is 36 cm, and the length is twice the width, what are the dimensions of rectangle?

$$\begin{aligned}
 P &= 36 \\
 P &= l + w + l + w \\
 P &= 2w + w + 2w + w \\
 P &= 6w
 \end{aligned}$$

$l = 2w$

$$\frac{36}{6} = \frac{6w}{6}$$

$6 = w$
 $l = 2(6) \quad l = 12$

SUMMARY (What I learned today)
