



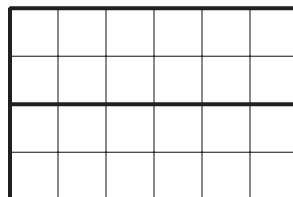
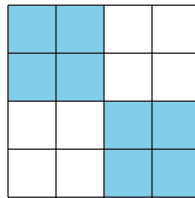
Explore Multiplication Strategies with Rectangles

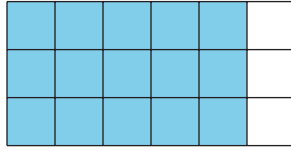
Let's use rectangles to explore multiplication strategies.

Warm-up

How Many Do You See: Squares

How many do you see? How do you see them?

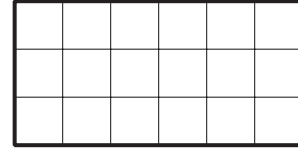




Activity 1

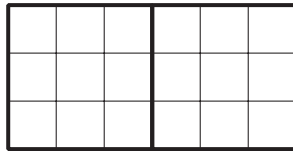
From Diagrams to Expressions

Andre and Elena are finding the area of this rectangle.



Andre writes
 6×3 .

He marks the rectangle like
this:



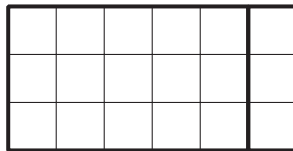
He then writes:

$$2 \times (3 \times 3)$$
$$2 \times 9 = 18$$

Area = 18 square
units

Elena writes
 3×6 .

She marks the rectangle like
this:



She then writes:

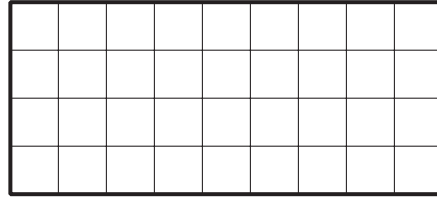
$$3 \times (5 + 1)$$
$$(3 \times 5) + (3 \times 1)$$
$$15 + 3$$
$$18$$

Area = 18 square
units

1. Discuss with a partner:
 - a. How are Andre and Elena's strategies alike? How are they different?
 - b. How are the numbers in Andre's expressions related to his diagram?
 - c. How are the numbers in Elena's expressions related to her diagram?

2. Here is another rectangle.

Its area can be found by finding the value of 4×9 .



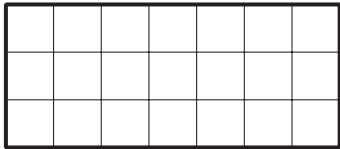
- a. Mark or shade the rectangle in a way that would help you find its area.
- b. Write 1 or more expressions that can represent your work on the diagram and show how you find the area.

Activity 2

From Expressions to Diagrams

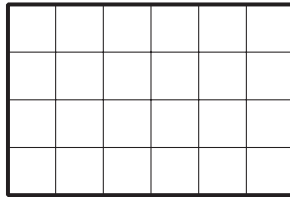
Here are some rectangles and expressions that show how 3 students saw the area of the rectangles.

Noah



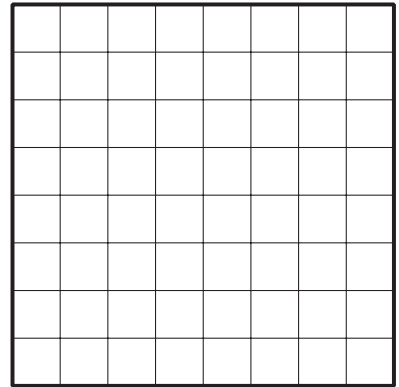
$$(5 \times 3) + (2 \times 3)$$

Priya



$$2 \times (2 \times 6)$$

Tyler



$$(5 \times 8) + (3 \times 8)$$

For each rectangle:

1. Name the 2 factors that can be multiplied to find its area.
2. Mark or shade each rectangle to show how each student saw the area.
Be prepared to explain your reasoning.