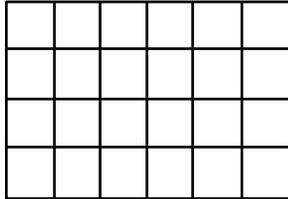
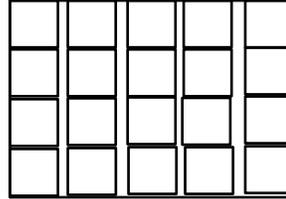


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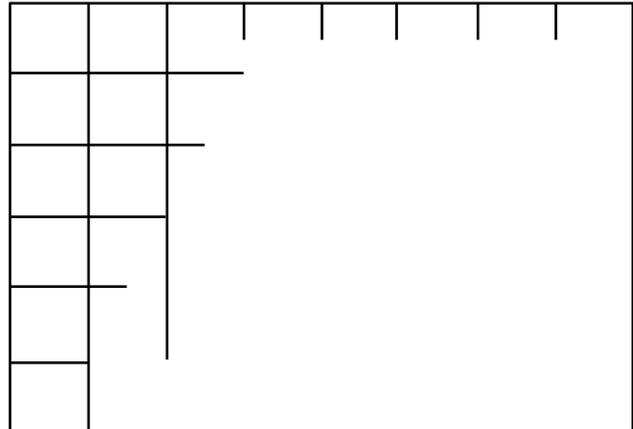
1. Jasmine and Roland each use unit squares to tile a piece of paper. Their work is shown below.

Jasmine's Array*Roland's Array*

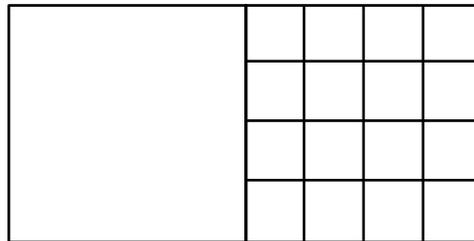
- a. Can one of the arrays be used to correctly measure the area of the piece of paper? If so, whose array would you use? Explain why.
- b. What is the area of the piece of paper? Explain your strategy for finding the area.
- c. Jasmine thinks she can skip-count by sixes to find the area of her rectangle. Is she correct? Explain why or why not.

2. Jaheim says you can create three rectangles with different side lengths using 12 unit squares. Use numbers, equations, and words to show what Jaheim is saying.
3. The area of a rectangle is 72 square units. One side has a length of 9 units. What is the other side length? Explain how you know using pictures, equations, and words.

4. Jax started to draw a grid inside the rectangle to find its area.
- Use a straight edge to complete the drawing of the grid.
 - Write both an addition and a multiplication equation that you could use to find the area, then solve.



5. Half of the rectangle below has been tiled with unit squares.



- How many more unit squares are needed to fill in the rest of the rectangle?
- What is the total area of the large rectangle? Explain how you found the area.

Mid-Module Assessment Task
Standards Addressed

Topics A–B

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

- 3.MD.5** Recognize area as an attribute of plane figures and understand concepts of area measurement.
- A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.
 - A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.
- 3.MD.6** Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).
- 3.MD.7** Relate area to the operations of multiplication and addition.
- Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
 - Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
 - Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Evaluating Student Learning Outcomes

A Progression Toward Mastery is provided to describe steps that illuminate the gradually increasing understandings that students develop *on their way to proficiency*. In this chart, this progress is presented from left (Step 1) to right (Step 4). The learning goal for each student is to achieve Step 4 mastery. These steps are meant to help teachers and students identify and celebrate what the student CAN do now and what they need to work on next.

A Progression Toward Mastery				
Assessment Task Item and Standards Assessed	STEP 1 Little evidence of reasoning without a correct answer. (1 Point)	STEP 2 Evidence of some reasoning without a correct answer. (2 Points)	STEP 3 Evidence of some reasoning with a correct answer or evidence of solid reasoning with an incorrect answer. (3 Points)	STEP 4 Evidence of solid reasoning with a correct answer. (4 Points)
<p>1</p> <p>3.MD.5 3.MD.6</p>	<p>Response demonstrates little evidence of reasoning without a correct answer.</p>	<p>Response shows limited reasoning with at least one correct answer.</p>	<p>Response includes evidence of some reasoning with three correct answers, or evidence of solid reasoning with an incorrect answer.</p>	<p>Student correctly answers:</p> <ul style="list-style-type: none"> a. Jasmine’s array, giving strong evidence of understanding that tiling must have no gaps or overlaps. b. The area is 24 tiles. Provides appropriate explanation of the calculation including counting or skip-counting strategies. c. Yes, there are 4 rows of 6 squares, so it is possible to skip-count by six.
<p>2</p> <p>3.MD.7b</p>	<p>Response demonstrates little evidence of reasoning without a correct answer.</p>	<p>Response shows limited reasoning with at least one correct answer.</p>	<p>Student identifies at least two of three rectangles correctly. Response includes evidence of accurate reasoning with pictures, numbers, or words.</p>	<p>Student correctly identifies three rectangles:</p> <ul style="list-style-type: none"> ▪ 1×12 or 12×1 ▪ 2×6 or 6×2 ▪ 3×4 or 4×3 <p>Response shows evidence of solid reasoning using pictures, numbers, and words.</p>



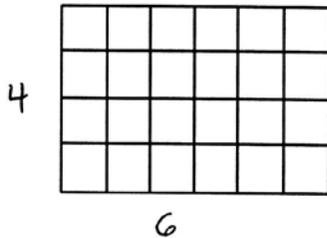
A Progression Toward Mastery				
<p>3</p> <p>3.MD.7b</p>	<p>Response demonstrates little evidence of reasoning without a correct answer.</p>	<p>Response shows limited reasoning without a correct answer.</p>	<p>Student finds the missing side length of 8 units but may not show enough work to clearly justify the answer.</p>	<p>Student correctly finds the missing side length of 8 units. Response shows evidence of solid reasoning using pictures, numbers, and words.</p>
<p>4</p> <p>3.MD.5 3.MD.6 3.MD.7a</p>	<p>Response demonstrates little evidence of reasoning without a correct answer.</p>	<p>Response shows evidence of some reasoning in attempt to write equations and complete the array, but work may not include a correct answer.</p>	<p>Student accurately completes the array and finds the area of 48 sq cm, but may not accurately provide both addition and multiplication equations.</p>	<p>Student correctly:</p> <ol style="list-style-type: none"> Completes the array with 8 columns and 6 rows. Writes an addition equation (repeated addition of 8 sixes or 6 eights); writes a multiplication equation (6×8 or 8×6); and gives an area of 48 sq cm.
<p>5</p> <p>3.MD.5a 3.MD.5b 3.MD.7a 3.MD.7d</p>	<p>Response demonstrates little evidence of reasoning without a correct answer to either part.</p>	<p>Response shows limited reasoning with a correct answer in one part.</p>	<p>Student slightly miscalculates the number of tiles needed to fill the remaining area, but the explanation shows evidence of solid reasoning. Part (b) is correct based on the student's slight miscalculation but not the correct answer of 32 units.</p>	<p>Student correctly:</p> <ol style="list-style-type: none"> Identifies that 16 tiles are needed to fill the remaining area. Says the area of the large rectangle is 32 square units. Explanation gives evidence of solid reasoning to support answer.

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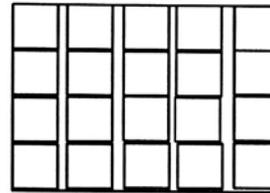
Date _____

1. Jasmine and Roland each use unit squares to tile a piece of paper. Their work is shown below.

Jasmine's Array



Roland's Array



- a. Can one of the arrays be used to correctly measure the area of the piece of paper? If so, whose array would you use? Explain why.

Jasmine's array correctly measures the area of the piece of paper. You can't have gaps or overlaps when you tile or it won't be right.

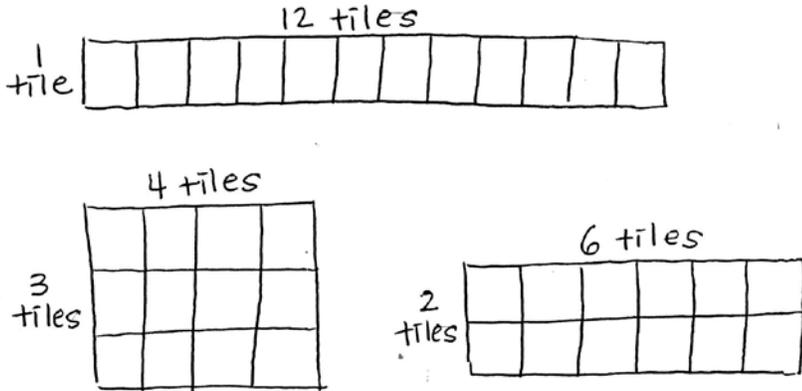
- b. What is the area of the piece of paper? Explain your strategy for finding the area.

6 tiles across and 4 tiles down.
I can multiply $6 \times 4 = 24$ to find the area.
Roland's array is wrong so I have to use Jasmine's array.

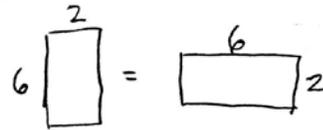
- c. Jasmine thinks she can skip-count by sixes to find the area of her rectangle. Is she correct? Explain why or why not.

Yes, Jasmine is correct. There are 4 rows of six squares so she can skip-count: 6, 12, 18, 24.
It's faster if she multiplies.

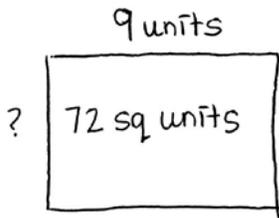
2. Jaheim says you can create three rectangles with different side lengths using 12 unit squares. Use numbers, equations, and words to show what Jaheim is saying.



Jaheim is correct. These are the only rectangles you can make with 12 tiles. You can turn them, but they will still be the same:



3. The area of a rectangle is 72 square units. One side has a length of 9 units. What is the other side length? Explain how you know using pictures, equations, and words.



$$? \times 9 = 72$$

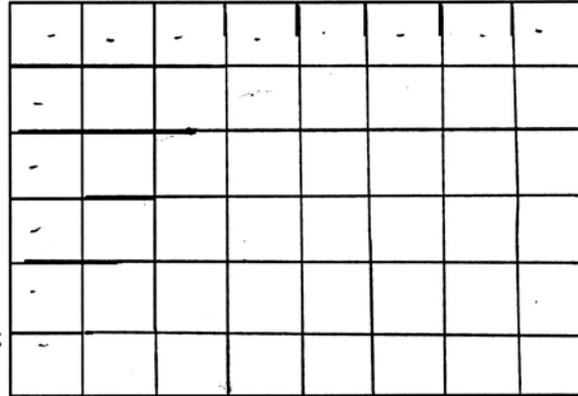
$$72 \div 9 = 8$$

If one side length is 9 units, the other side length is 8 units because $8 \times 9 = 72$.

4. Jax started to draw a grid inside the rectangle to find its area.

a. Use a straight edge to complete the drawing of the grid.

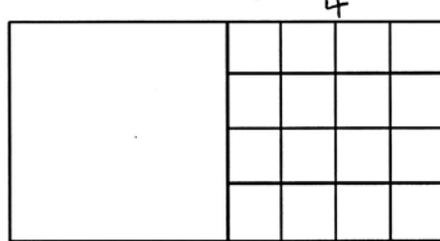
b. Write both an addition and a multiplication equation that you could use to find the area, then solve.



$$8 + 8 + 8 + 8 + 8 + 8 = 48 \text{ sq units}$$

$$6 \times 8 = 48 \text{ sq units}$$

5. Half of the rectangle below has been tiled with unit squares.



$$4 \times 4 = 16 \text{ sq units}$$

a. How many more unit squares are needed to fill in the rest of the rectangle?

If there's 16 sq units in one half, there will be 16 sq units in the other half too. You need 16 more tiles to fill it in.

b. What is the total area of the large rectangle? Explain how you found the area.

$$16 + 16 = 32 \text{ sq units.}$$

I added the 2 halves together to find the total area of the rectangle.