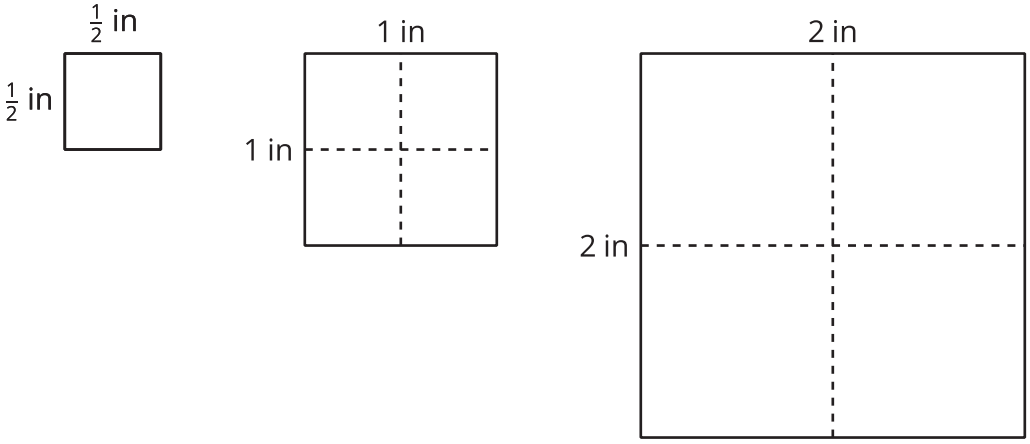
Unit 3, Lesson 10

Rectangles and Triangles with Fractional Lengths

Let's explore rectangles and triangles that have fractional measurements.

10.1 Notice and Wonder: Areas of Squares

What do you notice? What do you wonder?



10.2 How Many Would It Take?

Noah would like to cover a rectangular tray with rectangular tiles. The tray has a width of $11\frac{1}{4}$ inches and an area of $50\frac{5}{8}$ square inches.

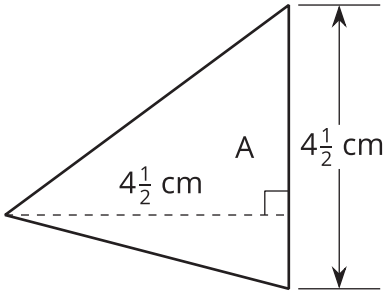
1. Find the length of the tray in inches. Show your reasoning.

2. The tiles are $\frac{3}{4}$ inch by $\frac{9}{16}$ inch. Draw a diagram to show one way Noah could lay the tiles. Your diagram does not need to show every tile but should show known measurements.

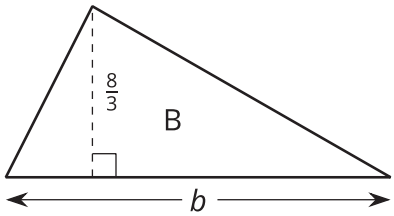
3. How many tiles would Noah need to cover the tray completely, without gaps or overlaps? Explain or show your reasoning.

10.3 Bases and Heights of Triangles

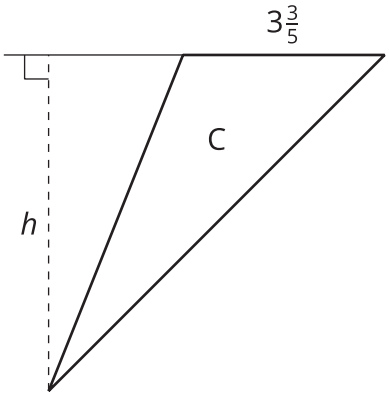
1. Find the area of Triangle A in square centimeters. Show your reasoning.



2. The area of Triangle B is 8 square units. Find the length of b. Show your reasoning.

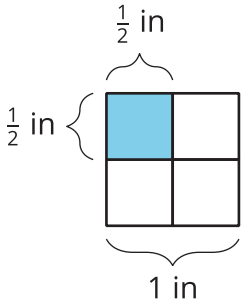


3. The area of Triangle C is $\frac{54}{5}$ square units. What is the length of h? Show your reasoning.

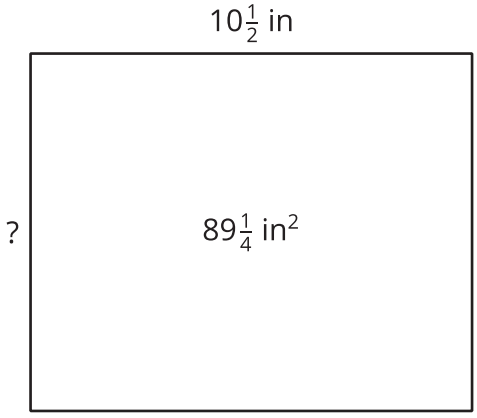


Lesson 10 Summary

If a rectangle has side lengths a units and b units, the area is $a \cdot b$ square units. For example, if we have a rectangle with $\frac{1}{2}$-inch side lengths, its area is $\frac{1}{2} \cdot \frac{1}{2}$ (or $\frac{1}{4}$) square inches.



This means that if we know the *area* and *one side length* of a rectangle, we can divide to find the *other* side length.



If one side length of a rectangle is $10\frac{1}{2}$ in and its area is $89\frac{1}{4}$ in^2, we can write this equation to show their relationship:

$$10\frac{1}{2} \cdot ? = 89\frac{1}{4}$$

Then we can find the other side length, in inches, using division:

$$89\frac{1}{4} \div 10\frac{1}{2} = ?$$