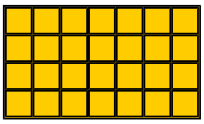
Fraction Multiplication and Area

To find the area of a rectangle, you multiply the lengths of the sides. For example, in the rectangle on the right, the sides are 4 units and 7 units, so the area is 4 × 7 = 28 square units.

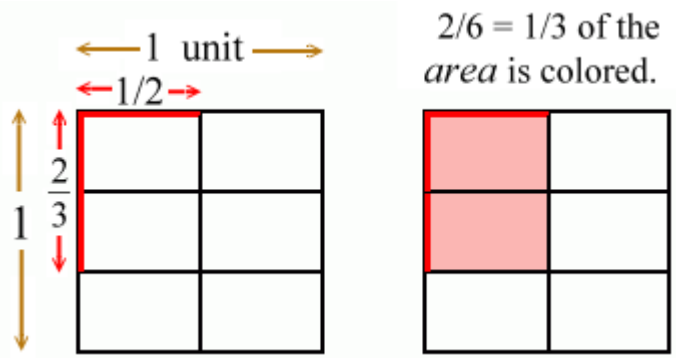


We can apply the same idea to fractions, too.

- The square has sides that are each 1 unit long.
- So the total area of the square is 1 square unit.
- Let's color a rectangle inside it that has sides that are 1/2 and 2/3 unit long.

$$\frac{1}{2} \times \frac{2}{3} = \frac{2}{6} = \frac{1}{3}$$

side length **side length** The **AREA,** compared to the total area

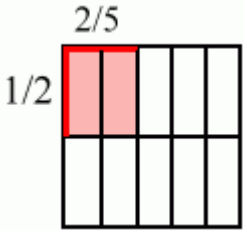


Remember: The two fractions being multiplied represent the *lengths of the sides* of the rectangle, and the answer represents the *area* that the sides enclose.

Example. On the top side, 2/5 of the side is colored. On the left side, 1/2 of the side is colored.

We multiply those fractions: $\frac{1}{2} \times \frac{2}{5} = \frac{2}{10} = \frac{1}{5}$

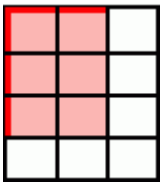
The answer means that 2/10, or 1/5, of the total area is colored.



Example. On the top side, 2/3 of the side is colored. On the left side, 3/4 of the side is colored.

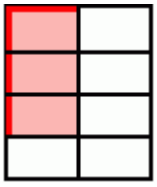
We multiply those fractions: $\frac{2}{3} \times \frac{3}{4} = \frac{6}{12} = \frac{1}{2}$

So 6/12, or 1/2, of the whole area is colored.

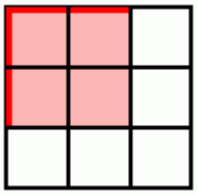


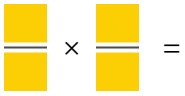
1. Write the multiplication sentence that describes each picture.

a.



b.





c.