



# Apply Fraction Multiplication

Let's solve problems about flags.

## Warm-up

### Number Talk: Fraction Multiplication

Find the value of each expression mentally.

- $\frac{1}{3} \times \frac{3}{5}$

- $\frac{2}{3} \times \frac{3}{5}$

- $\frac{5}{3} \times \frac{3}{5}$

- $\frac{2}{3} \times \frac{13}{5}$



## Activity 1

### Flags



Jada has a small replica of the flag of Thailand.

It is 5 inches wide and  $7\frac{1}{2}$  inches long.



1. What is the area of the flag? Explain or show your reasoning.
2. Each red stripe is  $\frac{5}{6}$  inches wide. What is the area of each red stripe? Explain or show your reasoning.
3. The blue stripe is  $\frac{10}{6}$  inches wide. What is the area of the blue stripe? Explain or show your reasoning.

## Activity 2

### More Flags



Han has a replica of the flag of Colombia.

It is  $3\frac{1}{2}$  inches wide and  $5\frac{1}{4}$  inches long.

The yellow stripe is  $\frac{1}{2}$  of the width of the flag. The blue and red stripes are each  $\frac{1}{4}$  of the width.

1.  $\frac{1}{4} \times 3\frac{1}{2} = \frac{7}{8}$ . The answer is  $\frac{7}{8}$  inch. What is the question?

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2.  $\frac{1}{2} \times 3\frac{1}{2} = \frac{7}{4}$  and  $\frac{7}{4} \times \frac{21}{4} = \frac{147}{16}$ . The answer is  $\frac{147}{16}$  square inches. What is the question?

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## Section A Summary

We learned how to multiply different kinds of fractions.

First, we learned how to multiply a unit fraction by a unit fraction.

Example: **A**

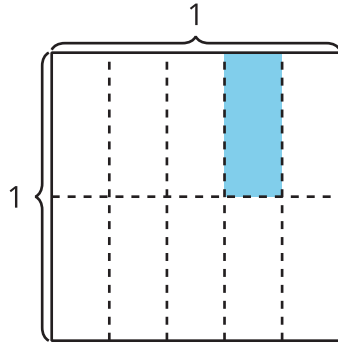


Diagram A shows  $\frac{1}{5}$  of  $\frac{1}{2}$  of a square is the same size as  $\frac{1}{10}$  of the whole square. So,  
$$\frac{1}{5} \times \frac{1}{2} = \frac{1}{10}.$$

Next, we learned how to multiply a unit fraction by a non-unit fraction.

Example: **B**

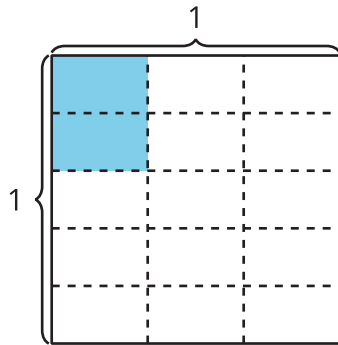


Diagram B shows  $\frac{2}{5}$  of  $\frac{1}{3}$  of a square is the same size as  $\frac{2}{15}$  of the whole square. So,  
$$\frac{2}{5} \times \frac{1}{3} = \frac{2}{15}.$$

Finally, we learned how to multiply a non-unit fraction by a non-unit fraction.

Example: **C**

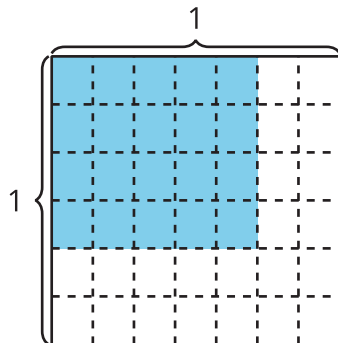


Diagram C shows  $4 \times 5$  or 20 pieces shaded with  $6 \times 7$  or 42 pieces in the whole square.

We can use multiplication to represent the relationship.

- Find the numerator,  $4 \times 5 = 20$
- Find the denominator,  $6 \times 7 = 42$
- Represent the relationship with an equation:  $\frac{4}{6} \times \frac{5}{7} = \frac{20}{42}$