



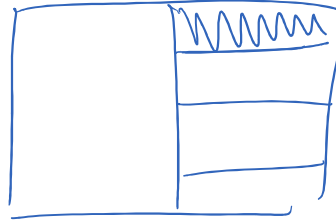
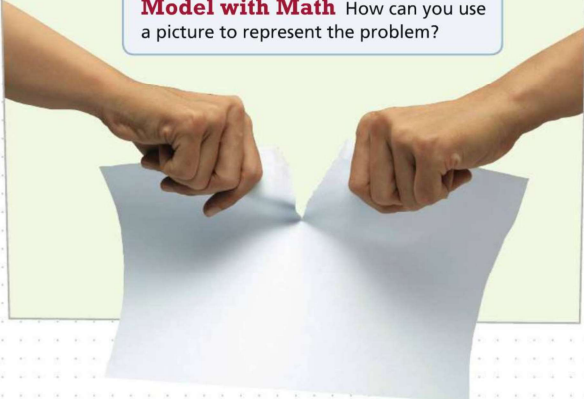
## Lesson 1.3: Multiply Fractions

I can...use models and equations to multiply fractions and mixed numbers.

**Solve & Discuss It!**

The art teacher gave each student half of a sheet of paper. Then she asked the students to color one fourth of their pieces of paper. What part of the original sheet did the students color?

**Model with Math** How can you use a picture to represent the problem?



$$\frac{1}{4} \text{ of } \frac{1}{2}$$
$$\frac{1}{4} \cdot \frac{1}{2} = \frac{1}{8}$$

Should your answer be less than or greater than 1? Explain.

Less

**Example 1: Multiply Fractions**

There was  $\frac{1}{4}$  of a pan of lasagna left. Tom ate  $\frac{1}{3}$  of this amount. What fraction of a whole pan of lasagna did Tom eat?

$$\frac{1}{4} \cdot \frac{1}{3} = \frac{1}{12}$$



Try it!

Find  $\frac{1}{4} \times \frac{1}{5}$

$$\frac{1}{20}$$

$$\frac{10 \div 2}{12 \div 2} = \frac{5}{6}$$

Convince Me!

a.) Find  $\frac{5}{6} \times \frac{1}{2}$

$$\frac{5}{12}$$

b.) Find  $\frac{3}{4} \times \frac{4}{9}$

$$\frac{12}{36} = \frac{1}{3}$$

$$\frac{12 \div 2}{36 \div 2} \cdot \frac{6 \div 2}{18 \div 2} = \frac{3 \div 3}{9 \div 3} = \frac{1}{3}$$

$$\frac{3}{4} \times \frac{4}{9} = \frac{1}{3}$$

**Example 2: Multiply Fractions**

$$\frac{2}{7} \times \frac{1}{4} = \frac{1}{14}$$

**Example 3: Multiply Mixed Numbers** *change to improper fractions*

Find  $7\frac{1}{2} \times 2\frac{3}{4}$

$$\frac{15}{2} \cdot \frac{11}{4} = \frac{165}{8} = 20\frac{5}{8}$$

Try it!

A clothing factory makes jackets. If each machine makes  $3\frac{1}{3}$  jackets per hour, how many jackets does one machine make in  $4\frac{1}{2}$  hours? Write and solve an equation.

$$3\frac{1}{3} \cdot 4\frac{1}{2} = \frac{10}{3} \cdot \frac{9}{2} = \frac{90}{6} = 15$$

Mixed #

$$3\frac{5}{7} = \frac{26}{7}$$

Improper Fraction

**KEY CONCEPT**

You can find the product of fractions or mixed numbers.

Multiply the numerators.

You can find the product of fractions or mixed numbers.

Multiply the numerators.

$$\frac{2}{5} \times \frac{3}{4} = \frac{2 \times 3}{5 \times 4} = \frac{6}{20} \text{ or } \frac{3}{10}$$

Multiply the denominators.

$$3\frac{1}{3} \times 1\frac{1}{2} = \frac{10}{3} \times \frac{3}{2} = \frac{10 \times 3}{3 \times 2} = \frac{30}{6} \text{ or } 5$$

Rename mixed numbers as fractions.

**Do you understand?**

1.) How can you multiply fractions and mixed numbers?

2.) Is the product of  $\frac{3}{6} \times \frac{5}{4}$  equal to the product of  $\frac{3}{4} \times \frac{5}{6}$ ? Explain.

-p

Rate your understanding. 1-Do not understand...4-can teach someone else



Learning Target: Multiply Fractions				
I can multiply fractions	1	2	3	4
I can multiply mixed numbers.	1	2	3	4

