Name _____

Fraction Multiplication

To multiply fractions, you can multiply the numerators, then multiply the denominators. Write the product in simplest form.

Multiply. $\frac{3}{10} \times \frac{4}{5}$

Step 1 Multiply the numerators. Multiply the denominators.

$$\frac{3}{10} \times \frac{4}{5} = \frac{3 \times 4}{10 \times 5}$$

$$= \frac{12}{50}$$

Step 2 Write the product in simplest form.

$$\frac{12}{50} = \frac{12 \div 2}{50 \div 2}$$

$$= \frac{6}{25}$$

So, $\frac{3}{10} \times \frac{4}{5}$ is $\frac{6}{25}$.

Find the product. Write the product in simplest form.

1. $\frac{3}{4} \times \frac{1}{5}$ _____

2. $\frac{4}{7} \times \frac{5}{12}$ _____

3. $\frac{3}{8} \times \frac{2}{9}$ _____

4. $\frac{4}{5} \times \frac{5}{8}$ _____

5. $\frac{1}{3} \times 4$ _____

6. $\frac{3}{4} \times 8$ _____

7. $\frac{5}{8} \times \frac{2}{3}$ _____

8. $\frac{5}{6} \times \frac{3}{8}$ _____

Area and Mixed Numbers

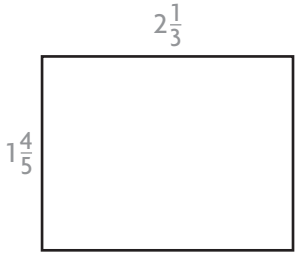
You can use an area model to help you multiply mixed numbers.

Find the area. $1\frac{4}{5} \times 2\frac{1}{3}$

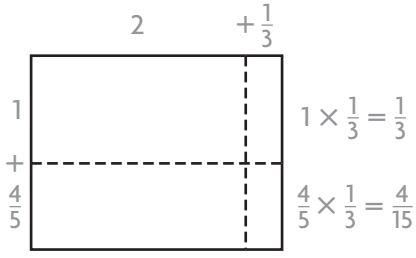
Step 1 Rewrite each mixed-number factor as the sum of a whole number and a fraction.

$1\frac{4}{5} = 1 + \frac{4}{5}$ and $2\frac{1}{3} = 2 + \frac{1}{3}$

Step 2 Draw an area model to show the original multiplication problem.



Step 3 Draw dashed lines, and label each section to show how you broke apart the mixed numbers in Step 1.



Step 4 Find the area of each section.

$1 \times 2 =$ 2

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

$\frac{4}{5} \times 2 =$ $\frac{8}{5}$

$\frac{4}{5} \times \frac{1}{3} =$ $\frac{4}{15}$

Step 5 Add the areas of each of the sections to find the total area of the rectangle.

$2 + \frac{1}{3} + \frac{8}{5} + \frac{4}{15} = \frac{\boxed{30}}{15} + \frac{\boxed{5}}{15} + \frac{\boxed{24}}{15} + \frac{4}{15}$

$= \frac{\boxed{63}}{15}$, or $4\frac{1}{5}$

So, $1\frac{4}{5} \times 2\frac{1}{3}$ is $4\frac{1}{5}$.

Use an area model to solve.

1. $1\frac{2}{3} \times 2\frac{1}{4}$

2. $1\frac{3}{4} \times 2\frac{3}{5}$

3. $2\frac{1}{2} \times 1\frac{1}{3}$

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Compare Mixed Number Factors and Products

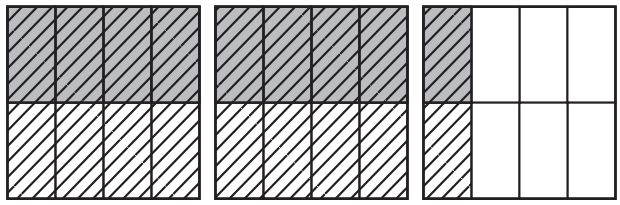
Complete each statement with *equal to*, *greater than*, or *less than*.

$1 \times 1\frac{3}{4}$ is ___?___ $1\frac{3}{4}$.

The Identity Property of Multiplication states that the product of

1 and any number is that number. So, $1 \times 1\frac{3}{4}$ is ___equal to___ $1\frac{3}{4}$.

$\frac{1}{2} \times 2\frac{1}{4}$ is ___?___ $2\frac{1}{4}$.



Draw three rectangles. Divide each rectangle into 4 equal columns.

Shade completely the first two rectangles and one column of the last rectangle to represent $2\frac{1}{4}$.

Divide the rectangles into 2 rows. Shade one row to represent the factor $\frac{1}{2}$.

18 small rectangles are shaded. 9 rectangles have both types of shading.
9 rectangles is less than the 18 rectangles that represent $2\frac{1}{4}$.

So, $\frac{1}{2} \times 2\frac{1}{4}$ is ___less than___ $2\frac{1}{4}$.

When you multiply a mixed number by a fraction less than 1,

the product will be ___less than___ the mixed number.

$1\frac{1}{4} \times 1\frac{3}{4}$ is ___?___ $1\frac{1}{4}$.

Use what you know about the product of two whole numbers greater than 1 to determine the size of the product of two mixed numbers.

So, $1\frac{1}{4} \times 1\frac{3}{4}$ is ___greater than___ $1\frac{1}{4}$ and ___greater than___ $1\frac{3}{4}$.

When you multiply two mixed numbers, their product is ___greater than___ either factor.

Complete the statement with *equal to*, *greater than*, or *less than*.

1. $\frac{3}{5} \times 1\frac{2}{7}$ is _____ $1\frac{2}{7}$.

2. $\frac{6}{6} \times 3\frac{1}{3}$ is _____ $3\frac{1}{3}$.

3. $2\frac{1}{5} \times 1\frac{1}{4}$ is _____ $1\frac{1}{4}$.

4. $\frac{8}{9} \times 4\frac{3}{4}$ is _____ $4\frac{3}{4}$.