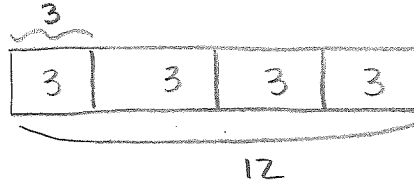


# Lesson 3: Interpreting and Computing Division of a Fraction by a Fraction—More Models



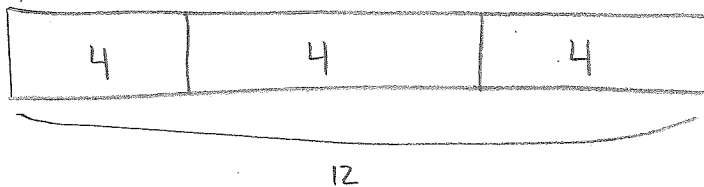
$$\frac{12}{3} = 4 \text{ or } 3 \times 4 = 12$$

Classwork

Opening Exercise

Draw a model to represent  $12 \div 3$ .

OR



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

Create a question or word problem that matches your model. Answers vary...

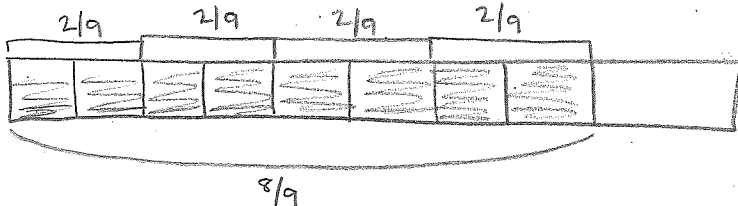
Example: 12 cards are shared with three people. How many cards does each person get?

Example: 12 balls are put into groups of 3. How many groups are made?

Example 1

$$\frac{8}{9} \div \frac{2}{9} \text{ or } \frac{8}{9} \cdot \frac{9}{2} = \frac{72}{18} \div 18 = 4$$

Write the expression in unit form, and then draw a model to solve.

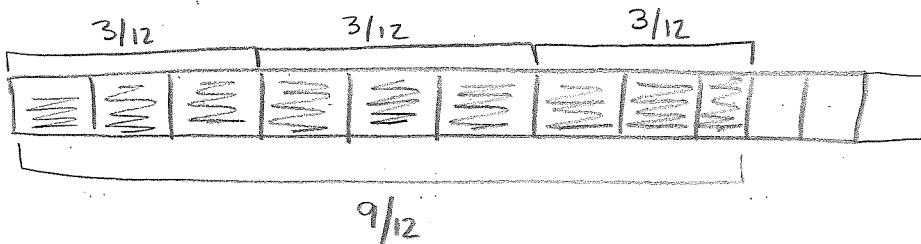


Here we have 4 groups of  $\frac{2}{9}$ . Therefore, the quotient is 4.

## Example 2

$$\frac{9}{12} \div \frac{3}{12} \quad \text{or} \quad \frac{9}{12} \cdot \frac{12}{3} = \frac{108}{36} \div 36 = 3$$

Write the expression in unit form, and then draw a model to solve.

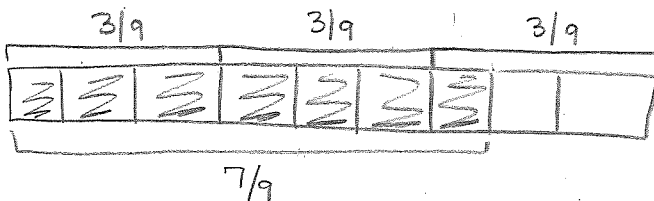


$$9 \text{ twelfths} \div 3 \text{ twelfths} = 9 \div 3 = 3$$

## \* Example 3

$$\frac{7}{9} \div \frac{3}{9} \quad \text{or} \quad \frac{7}{9} \cdot \frac{9}{3} = \frac{63}{27} = 2\frac{1}{3}$$

Write the expression in unit form, and then draw a model to solve.



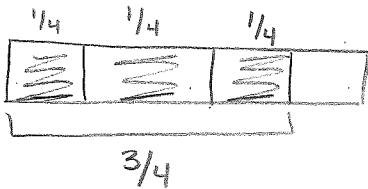
How many units of  $\frac{3}{9}$  can you see in  $\frac{7}{9}$   
 2 complete units and  $\frac{1}{3}$  of another.  
 $2\frac{1}{3}$  Same as  $7 \div 3$

## Exercises 1–6

Write an expression to represent each problem. Then, draw a model to solve.

1. How many fourths are in  $\frac{3}{4}$ ?

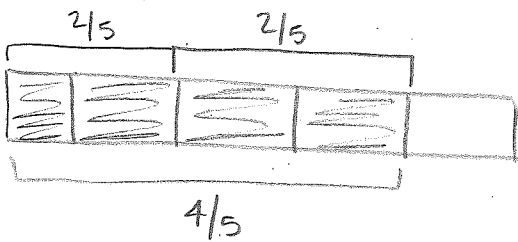
$$\frac{3}{4} \div \frac{1}{4} \quad \text{or} \quad \frac{3}{4} \cdot \frac{4}{1} = \frac{12}{4} = 3$$



There are 3 one-fourths in  $\frac{3}{4}$ .

2.  $\frac{4}{5} \div \frac{2}{5}$

$$\frac{4}{5} \cdot \frac{5}{2} = \frac{20}{10} \div 10 = 2$$



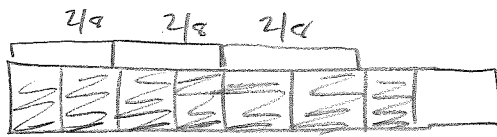
This is really  $4 \text{ fifths} \div 2 \text{ fifths}$ , which is 2.

3.  $\frac{9}{4} \div \frac{3}{4}$

$\frac{9}{4} \cdot \frac{4}{3} = \frac{36}{12} \div 12 = 3$

\* 4.  $\frac{7}{8} \div \frac{2}{8}$

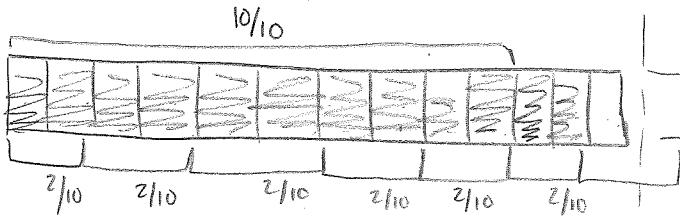
$\frac{7}{8} \cdot \frac{8}{2} = \frac{56}{16} \div 16 = 3\frac{5}{10} = 3\frac{1}{2}$



$3\frac{1}{2}$

\* 5.  $\frac{13}{10} \div \frac{2}{10}$

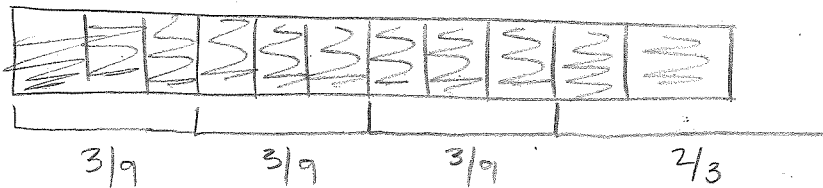
$\frac{13}{10} \cdot \frac{10}{2} = \frac{130}{20} = 6\frac{1}{2}$



$6\frac{1}{2}$

\* 6.  $\frac{11}{9} \div \frac{3}{9}$

$\frac{11}{9} \div \frac{3}{9} = \frac{99}{27} = 3\bar{6}$



$3\frac{2}{3}$

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