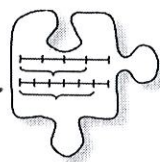


### 7.2.4 How is division like a ratio?

#### Fraction Division as Ratios



In previous lessons, you made sense of fractions and fraction division using several strategies. In this lesson, you will extend your understanding of fraction division to ratios and rates. Then you will apply these strategies to solve real-world problems.

7-6

a)

7-69. Graham knows that  $\frac{3}{4}$  gallon of paint covers  $\frac{2}{5}$  of the fence that he needs to paint. "Look," Graham said, "We can write this division problem as a ratio comparing the amount of paint being used in gallons to the portion of the fence that is painted. Then we just need to find an equivalent ratio for the whole fence." He wrote the following equation on his paper.

$$\frac{\frac{3}{4} \text{ gallon}}{\frac{2}{5} \text{ of the fence}} = \frac{? \text{ gallon(s)}}{1 \text{ whole fence}}$$

Use this example to set up and solve equivalent ratios for the following situations:

b) F

a) One serving of rice is  $\frac{3}{4}$  cup. How many servings are there in 12 cups of rice?

b) How much will each person get if 6 people divide 0.75 pound of gold equally between them?

c) Danika is baking a cake. She has only  $\frac{3}{4}$  cup of sugar and knows this is only enough for  $\frac{2}{3}$  of the recipe. How much sugar does the recipe call for?

d) Bob, a jeweler, has  $\frac{7}{8}$  ounces of silver. He needs  $\frac{2}{5}$  of an ounce for each pendant. How many pendants can he make?

c) makes

e) Emilie is working at the deli counter and has 4 pounds of potato salad to put into tubs. Each tub holds 0.75 pounds. How many tubs of potato salad can she make?

ings  
rice.

gets gold.

calls for sugar.

7-72. Find the following quotients using whatever strategy makes most sense to you.

$$\frac{4}{5} \div \frac{6}{5} = \frac{24}{25}$$

$$\frac{5}{12} \div \frac{1}{6} = \frac{30}{12} = 2\frac{6}{12} = 2\frac{1}{2}$$

$$\frac{7}{8} \div \frac{3}{2} = \frac{21}{16} = 1\frac{5}{16}$$

d)

7-75. Jamie has 9 gallons of paint that she needs to pour into containers that hold 0.75 gallon. How many containers will she need?

$$\frac{\text{containers}}{\text{Paint}} = \frac{1}{0.75 \text{ gal.}} \times \frac{12}{12} = \frac{12}{9 \text{ gal.}}$$

she needs 12 containers.

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

make pendants

$$e) \frac{\text{tubs}}{\text{pot. salad}} = \frac{1}{0.75 \text{ lb.}} \times \frac{5\frac{1}{3}}{5\frac{1}{3}} = \frac{5\frac{1}{3}}{4 \text{ lb.}}$$

(5 tubs)

$$4 \div 0.75 = 4 \div \frac{3}{4} = 4 \times \frac{4}{3} = \frac{16}{3} = 5\frac{1}{3}$$



7-69 what is being compared?  
 what is the question asking?

a)  $\frac{\text{serving}}{\text{c. of rice}} = \frac{1}{\frac{3}{4}\text{c.}} \times \boxed{\frac{16}{16}} = \frac{16\text{s.}}{12\text{c.}}$  There are 16 servings in 12c. of rice.

$$12 \div \frac{3}{4} = 12 \times \frac{4}{3} = \frac{48}{3} = 16 \frac{18}{3} = 16$$

b)  $\frac{\text{people}}{\text{gold}} = \frac{6}{0.75} \div \boxed{\frac{6}{6}} = \frac{1}{0.125}$  Each person gets 0.125 lb. of gold.

$$\begin{array}{r} 6 \overline{) 0.750} \\ \underline{- 60} \phantom{0} \\ 15 \phantom{0} \\ \underline{- 12} \phantom{0} \\ 30 \phantom{0} \end{array}$$

c)  $\frac{\frac{3}{4}\text{c. sugar}}{\frac{2}{3}\text{ of recipe}} \times \boxed{\frac{\frac{3}{2}}{\frac{3}{2}}} = \frac{1}{8}\text{c.}$  1 full recipe

The recipe calls for  $\frac{1}{8}$  c. of sugar.

$$1 \div \frac{2}{3} = 1 \times \frac{3}{2} = \frac{3}{2} \quad \frac{3}{4} \times \frac{3}{2} = \frac{9}{8} = 1 \frac{1}{8}$$

d)  $\frac{\text{Silver}}{\text{pendants}} = \frac{2 \frac{1}{5}\text{oz.}}{1\text{p.}} \times \boxed{\frac{2 \frac{3}{10}}{2 \frac{3}{10}}} = \frac{7}{8}\text{oz.}$  2 pendants

$$\frac{7}{8} \div \frac{2}{5} = \frac{7}{8} \times \frac{5}{2} = \frac{35}{16} = 2 \frac{3}{16}$$

e)  $\frac{\text{tubs}}{\text{pot. salad}} = \frac{1}{0.75\text{lb.}} \times \boxed{\frac{5 \frac{1}{3}}{5 \frac{1}{3}}} = \frac{5 \frac{1}{3}}{4\text{lb.}}$  she can fill 5 tubs.

$$4 \div 0.75 = 4 \div \frac{3}{4} = 4 \times \frac{4}{3} = \frac{16}{3} = 5 \frac{1}{3}$$