Lesson 1.5

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Lesson 1-5: Divide Fractions by Fractions

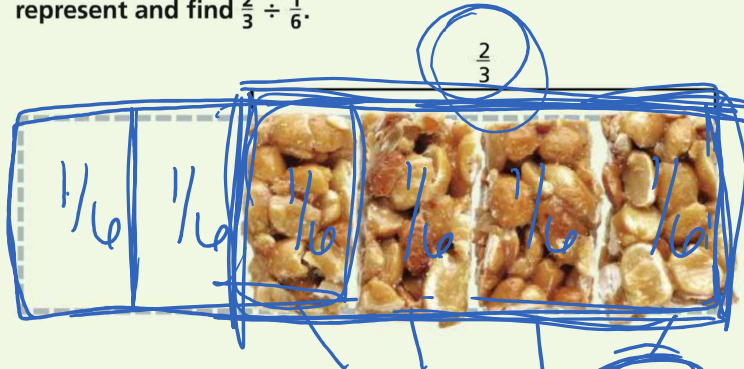**I can…** divide a fraction by another fraction.

Solve & Discuss It!

ACTIVITY

A granola bar was cut into 6 equal pieces. Someone ate part of the granola bar so that $\frac{2}{3}$ of the original bar remains. How many $\frac{1}{6}$ parts are left? Use the picture to draw a model to represent and find $\frac{2}{3} \div \frac{1}{6}$.

$\frac{2}{3}$

$\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$ $\frac{1}{6}$

Model with Math You can model with math by dividing a whole into equal parts.

$$\frac{2}{3} \div \frac{1}{6}$$

KCF

$$\frac{2}{3} \cdot \frac{6}{1} = \frac{12}{3} = 4$$
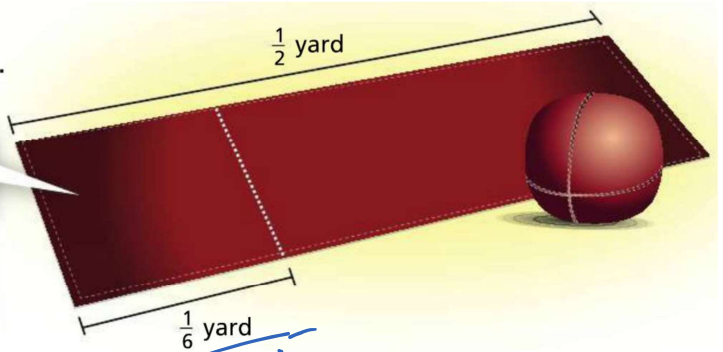
$$\frac{2}{3} \cdot \frac{2}{2} = \frac{4}{6}$$

4

How can you use multiplication to check your answer?

Example 1: Use an Area Model to Divide Fractions

Simon buys $\frac{1}{2}$ yard of material to make footbags. How many footbags can Simon make? Find $\frac{1}{2} \div \frac{1}{6}$.

Simon uses $\frac{1}{6}$ yard of material for each footbag that he makes.

$\frac{1}{2}$ yard

$\frac{1}{6}$ yard

Model with Math How can you use an area model to represent the division?

$$\frac{1}{2} \div \frac{1}{6}$$

$$\boxed{K C F}$$

$$\frac{1}{2} \times \frac{6}{1} = \frac{3}{1} = 3 \text{ footbags}$$

Try it!

a.) Find the quotient. $\frac{3}{4} \div \frac{2}{3}$

$$\frac{3}{4} \cdot \frac{3}{2} = \frac{9}{8} = \boxed{1\frac{1}{8}}$$

b.) Find the quotient $\frac{7}{10} \div \frac{2}{5}$

$$\frac{7}{10} \cdot \frac{5}{2} = \frac{7}{4} = \boxed{1\frac{3}{4}}$$

Example 2: Divide Fractions

How much of a $\frac{3}{4}$ cup serving is in $\frac{2}{3}$ cup of yogurt?

$$\frac{2}{3} \div \frac{3}{4} \qquad \frac{2}{3} \cdot \frac{4}{3} = \boxed{\frac{8}{9}}$$

Example 3: Divide Fractions

Andrew has $\frac{3}{4}$ gallon of orange juice. He wants to pour it into $\frac{1}{6}$ gallon containers. How many containers can Andrew fill?

$$\frac{3}{4} \div \frac{1}{6} \qquad \frac{3}{4} \cdot \frac{6}{1} = \frac{9}{2}$$

K C F

$$4\frac{1}{ } \qquad 2\overline{)9} \quad \frac{4}{}$$

$\frac{3}{4}$ gallon

$\frac{1}{6}$ gallon

$$\left(4\frac{1}{2}\right) \quad 2\overline{)9}$$
$$-8$$
$$1$$

Find the quotient.

$$\frac{1}{4} \div \frac{3}{8}$$

$$1) \ \frac{1}{4} \cdot \frac{8}{3} = \boxed{\frac{2}{3}}$$

$$2) \ \frac{1}{4} \cdot \frac{8}{3} \quad \frac{4 \div 2}{6 \div 2} = \boxed{\frac{2}{3}}$$

$$\frac{8}{12}$$

KEY CONCEPT 🔑

To divide a fraction by a fraction, rewrite the division equation as a multiplication equation.

To divide by a fraction, multiply by the reciprocal of the divisor.

$$\frac{4}{5} \div \frac{3}{10} = \frac{4}{5} \times \frac{10}{3} = \frac{40}{15} \text{ or } 2\frac{2}{3}$$

Do you understand?

1.) How can you divide a fraction by a fraction?

$$\div \ across$$
$$mult.$$
keep change Flip

2.) To find the quotient of $\frac{2}{5} \div \frac{8}{5}$, Corey rewrites the problem as $\frac{5}{2} \times \frac{8}{5}$. Explain Corey's mistake and how to correct it.

2nd needs to be flipped not 1st.

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

Learning Target: Dividing fractions by fractions	
I can divide fractions by fractions.	1 2 3 4