Unit 4 Lesson 11: Using an Algorithm to Divide Fractions

1 Multiplying Fractions (Warm up)

Student Task Statement

Evaluate each expression.

1. $\frac{2}{3} \cdot 27$
2. $\frac{1}{2} \cdot \frac{2}{3}$
3. $\frac{2}{9} \cdot \frac{3}{5}$
4. $\frac{27}{100} \cdot \frac{200}{9}$
5. $\left(1\frac{3}{4}\right) \cdot \frac{5}{7}$

2 Dividing a Fraction by a Fraction

Student Task Statement

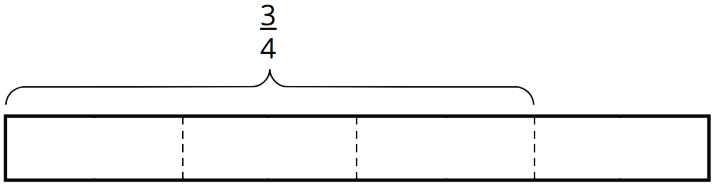
Work with a partner. One person works on the questions labeled “Partner A” and the other person works on those labeled “Partner B.”

1. Partner A: Find the value of each expression by completing the diagram.

   a.

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

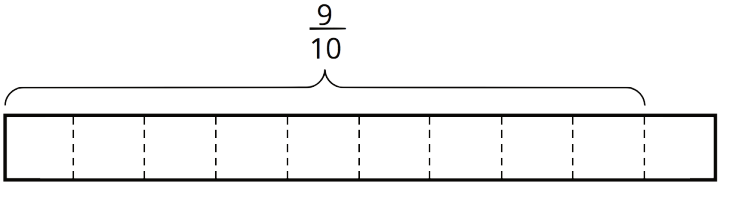
   How many $\frac{1}{8}$s in $\frac{3}{4}$?



   b.

   $\frac{9}{10} \div \frac{3}{5}$

   How many $\frac{3}{5}$s in $\frac{9}{10}$?



Partner B:

Elena said, "If I want to divide 4 by $\frac{2}{5}$, I can multiply 4 by 5 and then divide it by 2 or multiply it by $\frac{1}{2}$."

Find the value of each expression using the strategy Elena described.

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

b. $\frac{9}{10} \div \frac{3}{5}$

2. What do you notice about the diagrams and expressions? Discuss with your partner.

3. Complete this sentence based on what you noticed:

   To divide a number n by a fraction $\frac{a}{b}$, we can multiply n by _____ and then divide the product by _____.

4. Select **all** the equations that represent the sentence you completed.

   - $n \div \frac{a}{b} = n \cdot b \div a$
   - $n \div \frac{a}{b} = n \cdot a \div b$
   - $n \div \frac{a}{b} = n \cdot \frac{a}{b}$
   - $n \div \frac{a}{b} = n \cdot \frac{b}{a}$

3 Using an Algorithm to Divide Fractions

Student Task Statement

Calculate each quotient. Show your thinking and be prepared to explain your reasoning.

1. $\frac{8}{9} \div 4$
2. $\frac{3}{4} \div \frac{1}{2}$
3. $3\frac{1}{3} \div \frac{2}{9}$
4. $\frac{9}{2} \div \frac{3}{8}$
5. $6\frac{2}{5} \div 3$
6. After biking $5\frac{1}{2}$ miles, Jada has traveled $\frac{2}{3}$ of the length of her trip. How long (in miles) is the entire length of her trip? Write an equation to represent the situation, and then find the answer.