## Unit 4 Lesson 11: Using an Algorithm to Divide Fractions

### 1 Multiplying Fractions (Warm up)

#### Student Task Statement

Evaluate each expression.

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

### 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.
	1.
	* $\frac{3}{4}÷\frac{1}{8}$
	* How many $\frac{1}{8}$s in $\frac{3}{4}$?
	* 
	1.
	* $\frac{9}{10}÷\frac{3}{5}$
	* 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.
	1. $\frac{3}{4}÷\frac{1}{8}$
	2. $\frac{9}{10}÷\frac{3}{5}$
1. What do you notice about the diagrams and expressions? Discuss with your partner.
2. 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 \_\_\_\_\_\_\_\_.
1. Select **all** the equations that represent the sentence you completed.
	* $n÷\frac{a}{b}=n⋅b÷a$
	* $n÷\frac{a}{b}=n⋅a÷b$
	* $n÷\frac{a}{b}=n⋅\frac{a}{b}$
	* $n÷\frac{a}{b}=n⋅\frac{b}{a}$

### 3 Using an Algorithm to Divide Fractions

#### Student Task Statement

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

1. $\frac{8}{9}÷4$
2. $\frac{3}{4}÷\frac{1}{2}$
3. $3\frac{1}{3}÷\frac{2}{9}$
4. $\frac{9}{2}÷\frac{3}{8}$
5. $6\frac{2}{5}÷3$
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.



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