Illustrative Mathematics

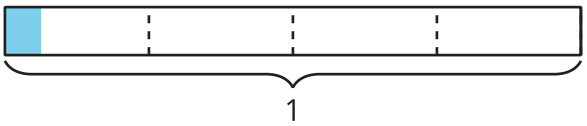
Grade 5 Unit 3
Lesson 12

Unit 3 Lesson 12: Represent Division of Unit Fractions by Whole Numbers

WU Estimation Exploration: How Much is Shaded? (Warm up)

Student Task Statement

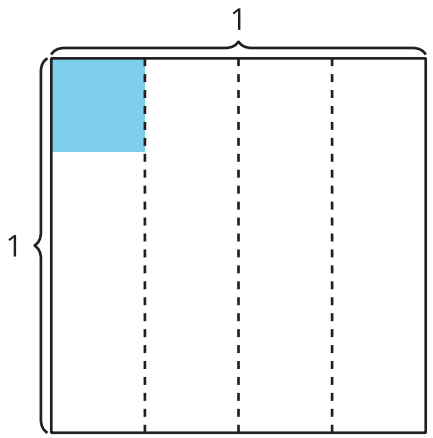
How much is shaded?



Record an estimate that is:

too low	about right	too high

Activity Synthesis

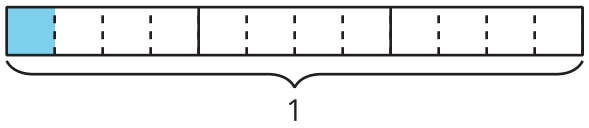


1 Diagrams, Equations, Situations

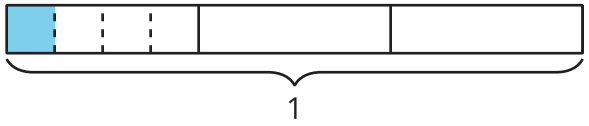
Student Task Statement

Priya and Mai used the diagrams below to find the value of $\frac{1}{3} \div 4$.

Priya's diagram:

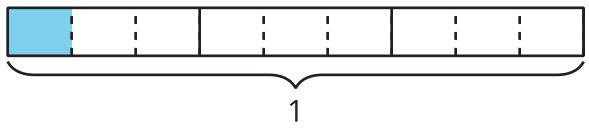


Mai's diagram:



1. What is the same about the diagrams?
2. What is different?
3. Find the value that makes the equation true.

   $\frac{1}{3} \div 4 =$ _____
4. Han drew this diagram to represent $\frac{1}{3} \div 3$. Explain how the diagram shows $\frac{1}{3} \div 3$.



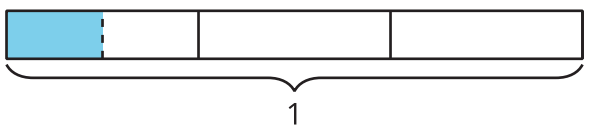
5. Find the value that makes the equation true. Explain or show your reasoning.

   $\frac{1}{3} \div 3 =$ _____

2 Priya's Work

Student Task Statement

1. Find the value of $\frac{1}{3} \div 2$. Explain or show your reasoning.
2. This is Priya's work for finding the value of $\frac{1}{3} \div 2$:

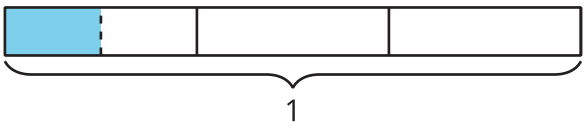


$\frac{1}{3} \div 2 = \frac{1}{2}$ because I divided $\frac{1}{3}$ into 2 equal parts and $\frac{1}{2}$ of $\frac{1}{3}$ is shaded in.

   a. What questions do you have for Priya?

b. Priya's equation is incorrect. How can Priya revise her explanation?

Activity Synthesis



3 Look for Patterns

Student Task Statement

1. Find the value that makes each equation true. Use a diagram if it is helpful.
   a. $\frac{1}{4} \div 2 =$ _____
   b. $\frac{1}{4} \div 3 =$ _____
   c. $\frac{1}{4} \div 4 =$ _____
2. What patterns do you notice?
3. How would you find the value of $\frac{1}{4}$ divided by any whole number? Explain or show your reasoning.

Images for Activity Synthesis