4-7: Learning Goals

- Let’s think about dividing things into groups when we can’t even make one whole group.

4-7-1: Estimating a Fraction of a Number

1. Estimate the following quantities:

   a. What is $\frac{1}{3}$ of 7?

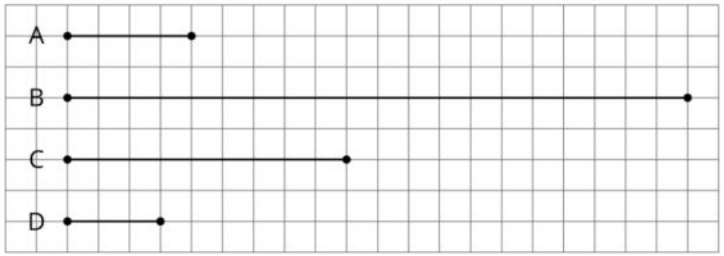
   b. What is $\frac{4}{5}$ of $9\frac{2}{3}$?

   c. What is $2\frac{4}{7}$ of $10\frac{1}{9}$?

2. Write a multiplication expression for each question.

4-7-2: Fractions of Ropes

Here is a diagram that shows four ropes of different lengths.



1. Compare the lengths of Ropes B, C, and D to the length of Rope A, and complete each statement. Then use the measurements shown on the grid to write a multiplication equation and a division equation for each statement.

   a. Rope B is _____ times as long as Rope A.

   Multiplication equation: Division equation:

   b. Rope C is _____ times as long as Rope A.

   Multiplication equation: Division equation:

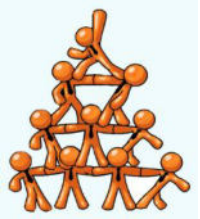
   c. Rope D is _____ times as long as Rope A.

   Multiplication equation: Division equation:

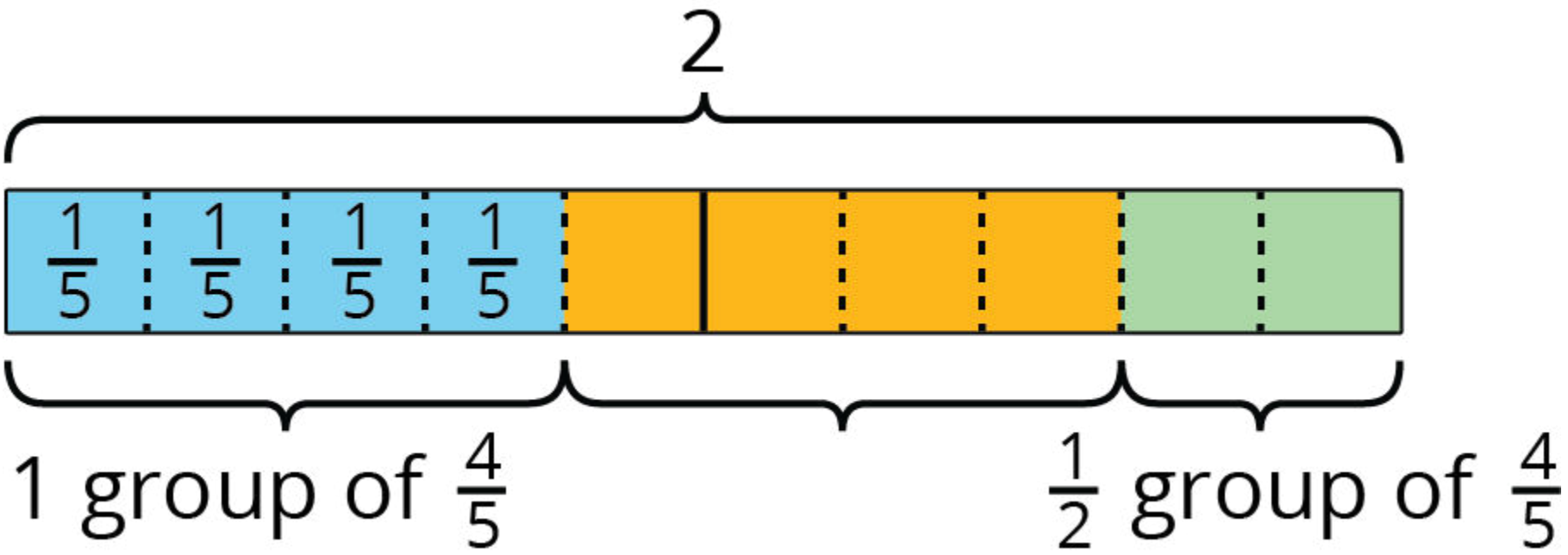
2. Each equation can be used to answer a question about Ropes C and D. What could each question be?

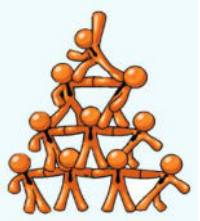
   a. $? \cdot 3 = 9$ and $9 \div 3 = ?$

   b. $? \cdot 9 = 3$ and $3 \div 9 = ?$



4-7-3: Fractional Batches of Ice Cream





4-7-3: Fractional Batches of Ice Cream

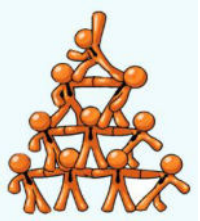
One batch of an ice cream recipe uses 9 cups of milk. A chef makes different amounts of ice cream on different days. Here are the amounts of milk she used:

- Monday: 12 cups
- Thursday: 6 cups
- Tuesday: $22\frac{1}{2}$ cups
- Friday: $7\frac{1}{2}$ cups

1. How many batches of ice cream did she make on each of the following days? Write a division equation and draw a tape diagram for the question about each day. Then answer the question.

   a. Monday

   b. Tuesday



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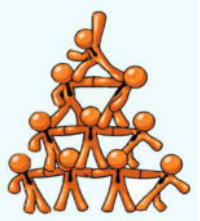
- Monday: 12 cups
- Tuesday: $22\frac{1}{2}$ cups
- Thursday: 6 cups
- Friday: $7\frac{1}{2}$ cups

2. What fraction of a batch of ice cream did she make on each of the following days? Write a division equation and draw a tape diagram for the question about each day. Then answer the question.

   a. Thursday

   b. Friday



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- Monday: 12 cups
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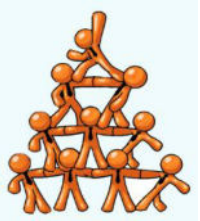
3. Write a division equation, and draw a tape diagram for each question. Then answer the question.

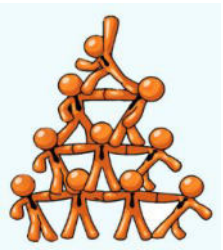
   a. What fraction of 9 is 3?

   b. What fraction of 5 is $\frac{1}{2}$?



4-7: Lesson Synthesis

- How can we tell if a division situation involves less than one whole group?
- How do we find quotients that are less than 1?



4-7: Learning Targets

- I can use diagrams and multiplication and division equations to represent and answer "what fraction of a group?" questions.
- I can tell when a question is asking for the number of groups and that number is less than 1.

4-7-4: A Partially Filled Container

There are $\frac{1}{3}$ gallon of water in a 3-gallon container. What fraction of the container is filled?

1. Write a multiplication equation and a division equation to represent the situation.

2. Draw a tape diagram to represent the situation. Then, answer the question.