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Unit 4, Lesson 6

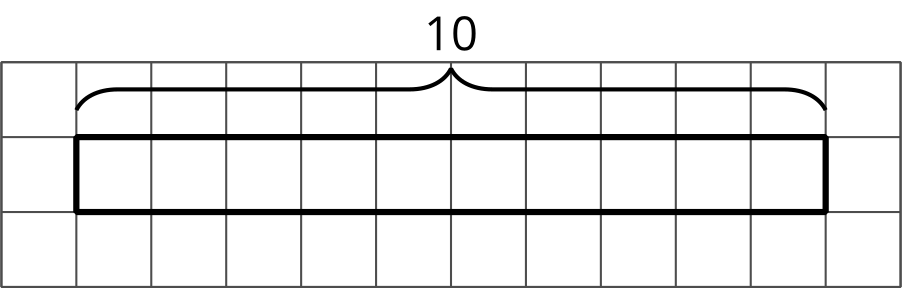
# Using Diagrams to Find the Number of Groups

Let’s draw tape diagrams to think about division with fractions.

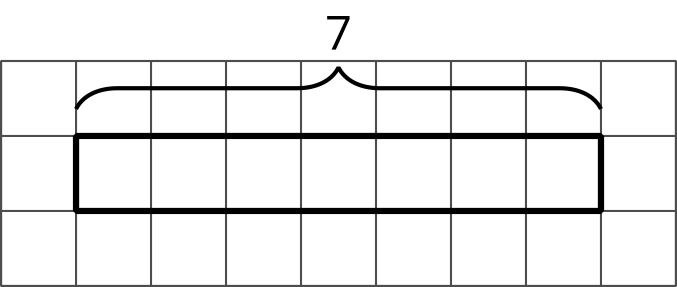
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## 6.1How Many of These in That?

We can think of the division expression as the question: “How many groups of are  
in 10?” Complete the tape diagram to represent this question. Then find the answer.



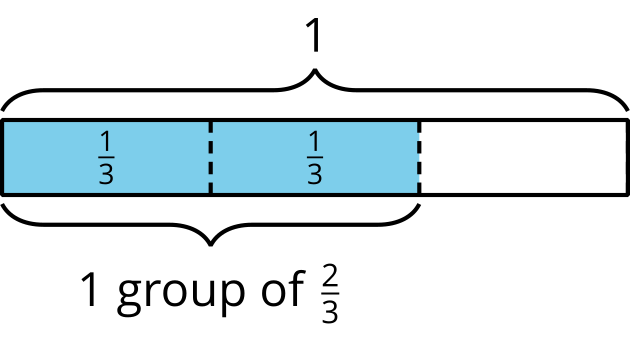
Complete the tape diagram to represent the question: “How many groups of 2 are in 7?” Then find the answer.

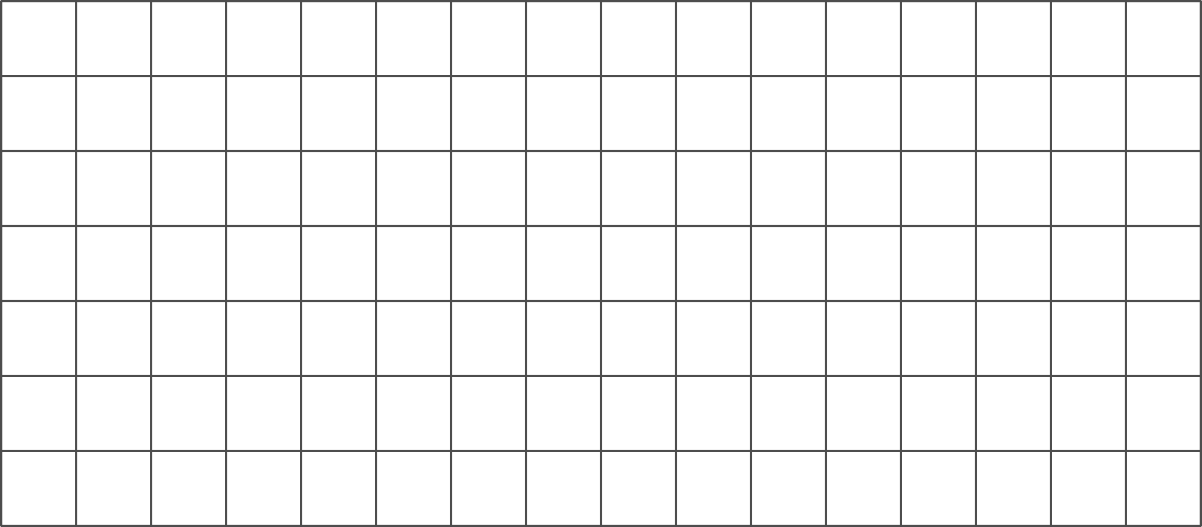
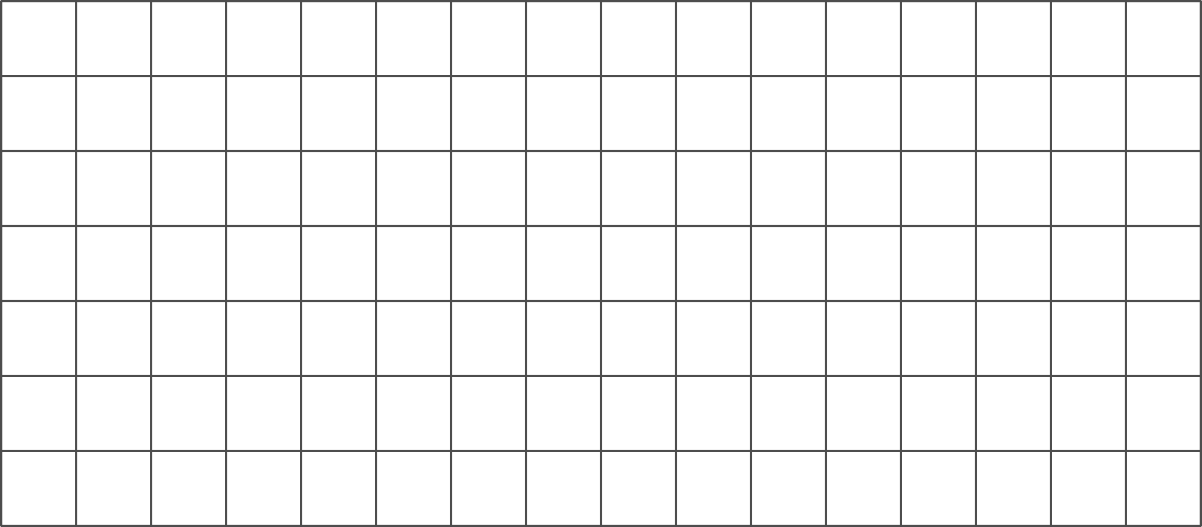
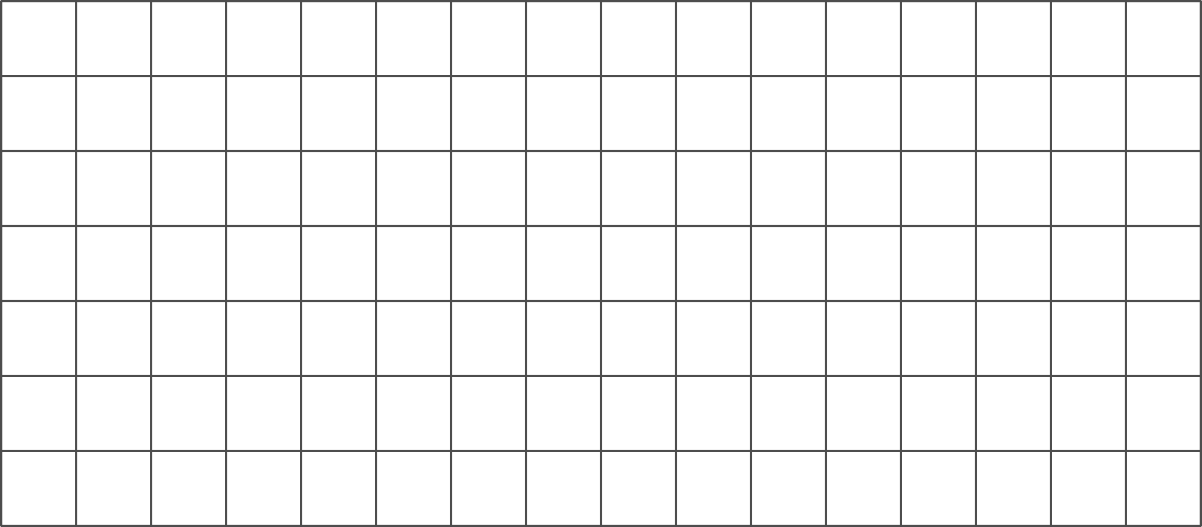


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## 6.2Representing Groups of Fractions with Tape Diagrams

To make sense of the question “How many s are in 1?” Andre wrote equations and drew a tape diagram.



1. In an earlier task, we used pattern blocks to help us solve the equation .  
   Explain how Andre’s tape diagram can also help us solve the equation.
2. Write a multiplication equation and a division equation for each question.  
   Then draw a tape diagram and find the answer.
   1. How many s are in 1?
   * 
   1. How many s are in 3?
   * 
   1. How many s are in 5?
   * 

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## 6.3Finding the Number of Groups

Write a multiplication equation or a division equation for each question, and then find the answer. Explain or show your reasoning.

1. How many groups of pound are in pounds?
2. How many -inch thick books make a stack that is 6 inches tall?

### Are you ready for more?

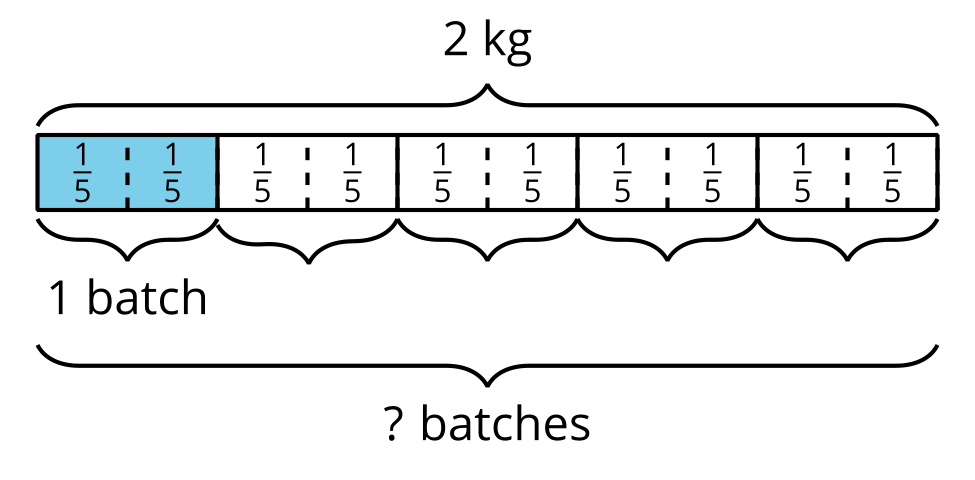
Write a story with a question that can be represented by the equation , and then find the answer. Show your reasoning.

## Lesson 6 Summary

One batch of a recipe calls for kg of flour. If a baker used 2 kg of flour, how many batches did she make?

We can think of the question as “How many groups of kg make 2 kg?” and represent it with the equations:

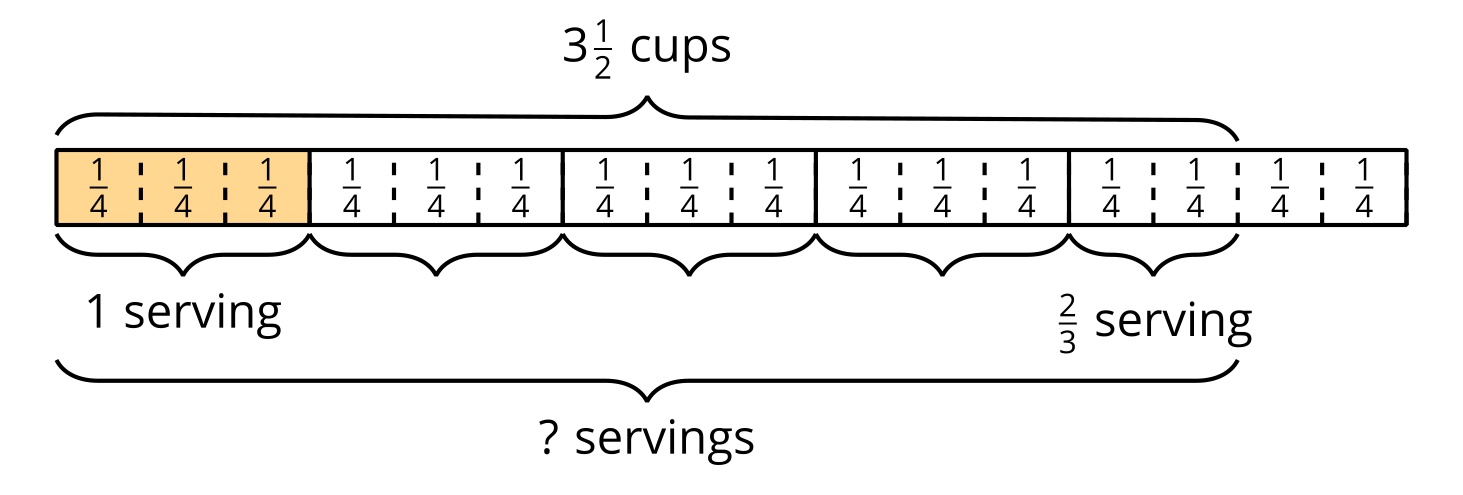
To help us make sense of the question, we  
can draw a tape diagram. This diagram shows 2 whole kilograms, with each kilogram partitioned into fifths.



We can see that there are 5 groups of in 2. Multiplying 5 and gives or 2, so is 5.

Sometimes the number of groups or the result of dividing is not a whole number. Suppose one serving of rice is cup. How many servings are there in cups?

Here are two equations and a diagram that represent the situation:



The diagram shows 4 full groups of , plus 2 extra s, which make of a group. So is . We can check this quotient by multiplying and .

, and , which is or .