

# How many servings of oatmeal?

## Task

A package contains 4 cups of oatmeal. There is  $\frac{1}{3}$  cup of oatmeal in each serving.

How many servings of oatmeal are there in the package? Explain. Draw a picture to illustrate your solution.

## Commentary

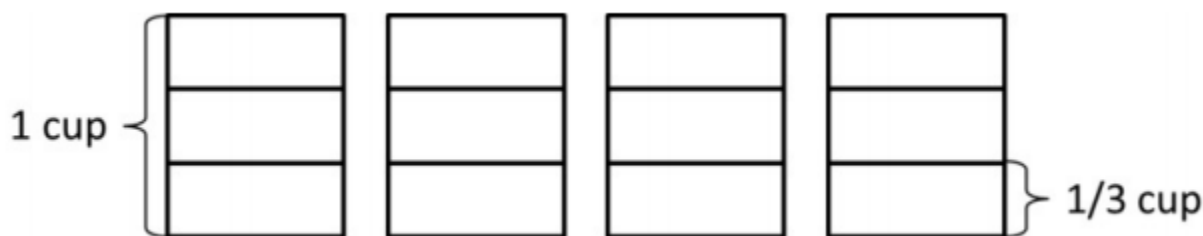
This task provides a context for performing division of a whole number by a unit fraction. This problem is a "How many groups?" example of division: the "groups" in this case are the servings of oatmeal and the question is asking how many servings (or groups) there are in the package. When asked to write problems which represent division, students often choose a "How many groups?" question. Teachers should also have their students work on tasks that represent the "How much in one group" interpretation of division. Special attention should be paid to the pictures which are quite different in the two cases.

It would be useful to have  $\frac{1}{3}$  and 1 cup measuring cups on hand. Students who have never seen for themselves that it takes 3 of the  $\frac{1}{3}$  cups to make 1 cup will need to actually do it.

Once students understand the solution to this problem, the teacher could use the picture in part (b) to help explain why the "invert and multiply" algorithm for division works in this setting. It is important for the students to see some examples and understand why the "invert and multiply" algorithm works before using it in more complicated cases where it is harder to picture.

## Solution

The picture below shows the four cups of oatmeal. Since there is  $\frac{1}{3}$  of a cup of oatmeal in a serving, this means that each of the four cups contains 3 servings. The total number of servings is seen to be  $4 \times 3 = 12$  as there are 4 groups of 3 servings:



This particular solution method reveals how dividing a whole number by a unit fraction is the same as multiplying that whole number by the reciprocal of the unit fraction.