Equal Ratios
A Closer Look at the Video

After watching the *Equal Ratios* video, make sense of the mathematics by taking a closer look at the problem situations and solutions. Use the questions and comments in bold to help you solve the problem.

In this video, Skylar is helping his friends get ready for a party and wants to make sure they have enough refreshments for the group. He uses a ratio table to decide if he has enough lemonade and popcorn. Ratio tables help students use the relationships between numbers in a proportion to solve problems.

Problem 1: Skylar is going to make a large container of lemonade for a party. The container holds 64 cups. Three scoops of mix are needed to make 8 cups of lemonade. How many scoops of mix does he need for the large container?

How can you use a ratio table to help you solve this problem?

Scoops of lemonade mix	3					?
Cups of lemonade	8					64

If you take a ratio and multiply each quantity by the same number, you get an equal ratio. Since 8 x 8 = 64, multiply 8 x 3 to find the number of scoops of lemonade you need for 64 cups, the amount the container holds.

x 2, x 3, x 8

Scoops of lemonade mix	3	6	9			24
Cups of lemonade	8	16	24			64

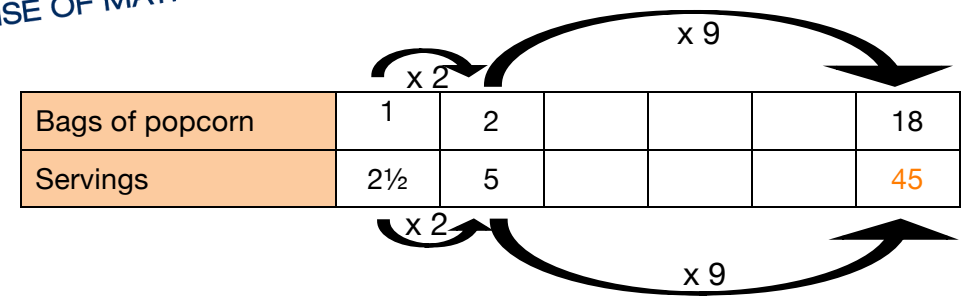
x 2, x 3, x 8

Problem 2a: One bag of popcorn is two and one-half servings. How many servings are there in 18 bags?

How can you use a ratio table to help you solve this problem? You may want to start by finding the number of people served with two bags of popcorn.

Bags of popcorn	1					18
Servings	2½					?

Since 2 x 1 = 2, multiply 2 x 2½ to get the number of servings in two bags of popcorn. Two bags of popcorn will serve five people. Since 9 x 2 = 18, multiply 9 x 5 to find the number of servings in 18 bags of popcorn. Eighteen bags of popcorn serve 45 people.

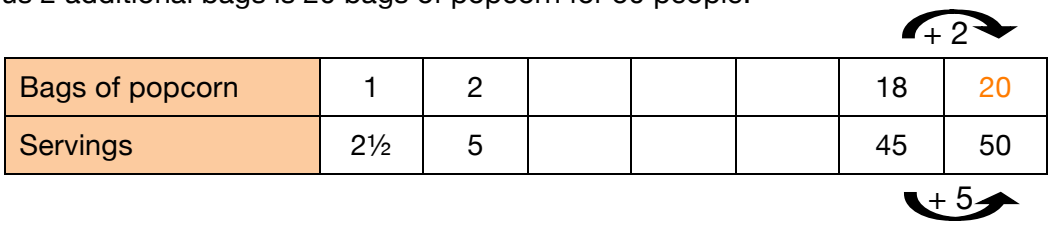


Problem 2b: They are expecting 50 people at the party. How many bags of popcorn will they need?

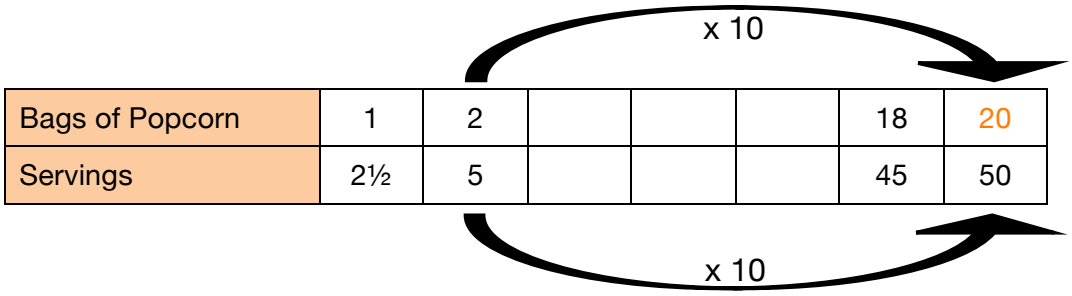
Use a ratio table to help you solve this problem.

Bags of popcorn	1	2				18	?
Servings	2½	5				45	50

Eighteen bags of popcorn are enough for 45 servings. If 50 guests are expected, you need five more servings of popcorn. From the table you can see that five servings require two bags of popcorn. So 18 bags plus 2 additional bags is 20 bags of popcorn for 50 people.



Another way to think about this problem is to again use the ratio table. You know that five servings require two bags of popcorn. If you multiply 10 by 5 servings, you get the desired 50 servings. Then also multiply 10 times 2 bags to get 20 bags of popcorn.



There are multiple ways to use a ratio table. You can multiply two quantities in a ratio by the same number to get an equal ratio. For example, two bags of popcorn make five servings, and 10 times 2, or 20 bags of popcorn make 10 times 5, or 50 servings.

You can also add the quantities of two ratios in a table to get an equal ratio. For example, two bags of popcorn is five servings; 18 bags of popcorn is 45 servings. So, 2 + 18, or 20 bags of popcorn will make 5 + 45, or 50 servings of popcorn.