

Equivalent Ratios and Unit Rate

You can find a unit rate by setting up an equation of equivalent ratios. This equation is called a proportion.

Example:

- 1) There are 21 water bottles to 7 forks. Find the unit rate for 1 fork.

First, set up a proportion:
$$\frac{\text{Water Bottles}}{\text{Forks}} = \frac{21}{7} = \frac{\square}{1}$$

You can look at the relationship that is created for the forks. The 7 was divided by 7 to make 1. Then apply that same relationship to the top. 21 divided by 7 is 3.

So, there are 3 water bottles for every 1 fork.

You Try:

- 1) Megan paid \$12.00 for 3 lip gloss flavors. What is the unit rate?
- 2) Erin paid \$12.00 for 5 lip gloss flavors. What is the unit rate?

Equivalent Ratios

You can find equivalent ratios in two different ways, using a table or a graph.

Tables

- 1) Fill in the information already given to you.
- 2) Find the pattern by writing the numbers as a fraction.
- 3) Fill in the rest of the table based on the pattern. (Multiply the top and bottom number by a common factor.)

Example:

- 1) Find the missing value by finding equivalent ratios.

Green Beads	2	4	6	8	10
Blue Beads	5	10	15	20	?

$$\frac{2}{5} = \frac{4}{10} = \frac{6}{15} = \frac{8}{20} = \frac{10}{?}$$

Since the pattern shows that we are multiplying the numerator and denominator of our original fraction by the same factor, you can see that we multiplied 2 times 5 to get 10. That means we will multiply 5 by 5, so the ? must be equal to 25.