

Ratios: A ratio is a comparison of two different things. Ratios can be written in three different ways:

- 4 to 3
- 4 : 3
- $\frac{4}{3}$

While these three ways are all acceptable, the most common method for writing a ratio is as a fraction (the third one).

Imagine you have a bag of marbles with 7 green marbles, 10 blue marbles, and 9 red marbles.

- The ratio of green to blue would be $\frac{7}{10}$
- The ratio of red to green would be $\frac{9}{7}$
- The ratio of blue to all marbles would be $\frac{10}{26}$, which would reduce to $\frac{5}{13}$

TASK #1: Find the following ratios: (make sure they are in simplest form)

A ski resort has the following trails:

- 14 easy
- 20 intermediate
- 5 difficult
- 8 expert

expert/intermediate _____

easy/all trails _____

difficult/intermediate _____

expert/easy _____

Rates: A specific type of ratio is called a rate. A *rate* is a ratio of two things that have different units. For example, miles per hour is a rate because it is a comparison of two different units (miles and hours). A *unit rate* is a rate that has a denominator of 1 unit.

Here are some example rates:

Here are some examples of unit rates:

The wheel turned 610 *times* in 5 *rotations*
The temperature dropped 18° in 6 *min.*
We traveled 80 *miles* in 4 *hours*
50 *oz.* of pudding is 5 *servings*

She played 44 *minutes* per *game*
Lightning strikes 100 *times* per *second*
Ham is \$4.99 per *pound*
Her serve is 110 *miles* per *hour*

TASK #2: Make the following rates into unit rates.

24 adults/4 cars _____ 3 lbs/\$2 _____

-75ft/20 sec _____ 87¢/30 in _____

\$10/5 ft _____ 88°/11 min. _____

TASK #3: A scale drawing of an object utilizes ratios of lengths, but it either smaller or larger than the original image.

- a) Draw your image on piece of graph paper.
- b) Once your image has been drawn, you will need to create a larger piece of graph paper (tag-board and butcher paper work well).
- c) Using a meter-stick, draw your new piece of graph paper. The units should be much larger than the units on your original piece of graph paper.
- d) Copy the image onto the larger graph paper, one block at a time.
- e) The result will be a much larger version of the same picture, drawn to scale.