

Lesson Summary

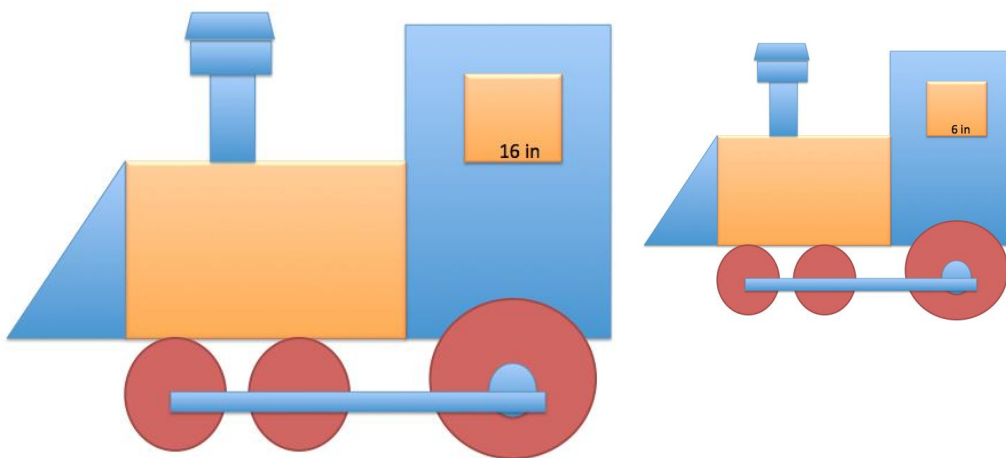
The scale factor is the number that determines whether the new drawing is an enlargement or a reduction of the original. If the scale factor is greater than 100%, then the resulting drawing is an enlargement of the original drawing. If the scale factor is less than 100%, then the resulting drawing is a reduction of the original drawing.

To compute actual lengths from a scale drawing, a scale factor must first be determined. To do this, use the relationship $\text{Quantity} = \text{Percent} \times \text{Whole}$, where the original drawing represents the whole and the scale drawing represents the quantity. Once a scale factor is determined, then the relationship

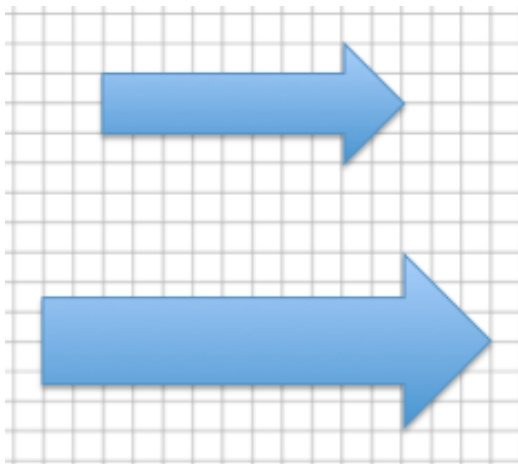
$\text{Quantity} = \text{Percent} \times \text{Whole}$ can be used again using the scale factor as the percent, the actual length from the original drawing as the whole, and the actual length of the scale drawing as the quantity.

Problem Set

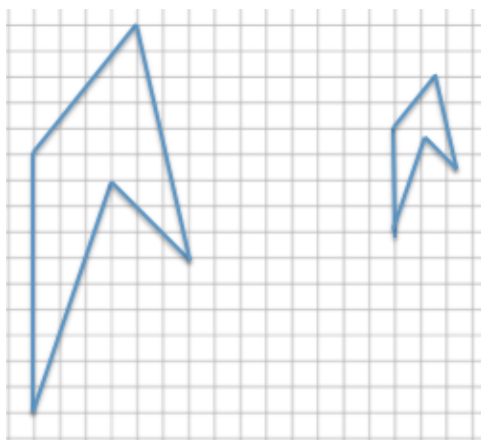
1. The smaller train is a scale drawing of the larger train. If the length of the tire rod connecting the three tires of the larger train, as shown below, is 36 inches, write an equation to find the length of the tire rod of the smaller train. Interpret your solution in the context of the problem.



2. The larger arrow is a scale drawing of the smaller arrow. The distance around the smaller arrow is 25.66 units. What is the distance around the larger arrow? Use an equation to find the distance and interpret your solution in the context of the problem.



3. The smaller drawing below is a scale drawing of the larger. The distance around the larger drawing is 39.4 units. Using an equation, find the distance around the smaller drawing.



4. The figure is a diagram of a model rocket and is a two-dimensional scale drawing of an actual rocket. The length of a model rocket is 2.5 feet, and the wing span is 1.25 feet. If the length of an actual rocket is 184 feet, use an equation to find the wing span of the actual rocket.

