

Pre-Algebra  
Lesson 6-6  
Scale Figures

Goal: Find the scale and apply it to figures

A scale drawing is a 2-dimensional drawing that is similar to what it represents.

Examples: Blueprints

A scale model is a 3-dimensional models that is similar to the object.

scale- gives the relationship between the model's dimensions and the actual dimensions

A scale of 2 means, twice as much and a scale of  $\frac{1}{4}$  means that it is a quarter of the size.

A map uses a scale of  $1'' = 5$  miles. Two towns are 4.5 inches apart of the map. How far apart are the towns?

$$\frac{1''}{5 \text{ miles}} = \frac{4.5''}{? \text{ miles}}$$

$$5 \cdot 4.5 = 22\frac{1}{2} \text{ miles}$$

Mike's map shows a bicycle route that is 112 miles long. On his map, the distance is 14 inches. What is the scale of the map.

$$\frac{14''}{112 \text{ miles}} \rightarrow \frac{1''}{8 \text{ miles}}$$

The scale can be written without units if the measurements have the same unit.

Ex:

$$1 \text{ cm} : 2 \text{ m} \rightarrow \frac{1 \text{ cm}}{2 \text{ m}} \rightarrow \frac{1 \text{ cm}}{200 \text{ cm}} \rightarrow 1:200$$

Finding a dimension of a scale model:

A model of a sailboat has a scale of 1:20. The actual sailboat is 32 feet long. How long is the model?

$$\frac{\text{Scale}}{\text{Actual}} = \frac{X}{32'}$$
$$\frac{1}{20} = \frac{X}{32}$$
$$32 = \frac{20X}{20}$$
$$X = 1.6 \text{ feet}$$

Homework:

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40, 42, 45, 51