

Scale Drawings and Models



You will interpret scale models

You will use scale factors to solve problems

Scale Models/Scale Drawings

Models or drawings that are prop'l to an actual item

Scale Ratio Model/drawing

$$\frac{.75 \text{ in}}{6 \text{ mi}}$$

actual

$$.75 \text{ in} : 6 \text{ mi}$$

Scale Factor

unitless ratio in simplest form.

$$\frac{.75 \text{ in}}{6 \text{ mi}} \cdot \frac{1 \text{ ft}}{12 \text{ in}}$$

$$\frac{1 \text{ mi}}{5280 \text{ ft}} = \frac{.75}{380,160} \div .75$$

MAPS The distance between Boston and Chicago on a map is 9 inches. If the scale of the map is 1 inch: 95 miles, what is the actual distance from Boston to Chicago?

$$\frac{1 \text{ in}}{95 \text{ mi}} = \frac{9 \text{ in}}{x}$$

$$1x = 9(95)$$

$$x = 855 \text{ miles}$$

A. SCALE MODEL A miniature replica of a fighter jet is 4 inches long. The actual length of the jet is 12.8 yards. What is the scale of the model?

$$\frac{4 \text{ in}}{12.8 \text{ yd}} = \frac{1 \text{ in}}{3.2 \text{ yd}}$$

B. SCALE MODEL A miniature replica of a fighter jet is 4 inches long. The actual length of the jet is 12.8 yards. How many times as long as the actual is the model jet?

115.2 times as long

4 in

12.8 yd

~~1 in~~
~~3.2 yd~~

~~2 ft~~
~~12 in~~

~~1 yd~~
~~3 ft~~

= $\frac{1}{115.2}$

↑

Scale

SCALE DRAWING Gerrard is making a scale model of his classroom on an 11-by-17 inch sheet of paper. If the classroom is 20 feet by 32 feet, choose an appropriate scale for the drawing and determine the drawing's dimensions.

$$20 \div 11 = 1.8$$

$$32 \div 17 = 1.88$$

$$\frac{1 \text{ in}}{2 \text{ ft}}$$

$$\frac{1 \text{ in}}{2 \text{ ft}} = \frac{x}{20 \text{ ft}} = 10 \text{ in}$$

$$\frac{1 \text{ in}}{2 \text{ ft}} = \frac{x}{32} = 16 \text{ in}$$

10" x 16"