6.6 Scale Drawings

Goal: Use proportions with scale drawings.

Vocabulary	
Scale drawing:	
Scale model:	A scale model is a three-dimensional model that is
Scale:	

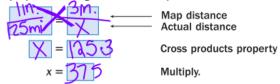
Example 1 Using a Scale Drawing

On a map, the distance between two cities is 3 inches. What is the actual distance (in miles) between the two cities if the map's scale is 1 in.: 125 mi?

314.

Solution

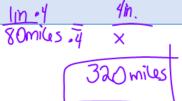
Let x represent the actual distance (in miles) between the two cities. The ratio of the map distance between the two cities to the actual distance x is equal to the scale of the map. Write and solve a proportion using this relationship.



Answer: The actual distance is 375mus

Checkpoint

1. On a map, the distance between two cities is 4 inches. What is the actual distance (in miles) between the two cities if the map's scale is 1 in.: 80 mi?



Example 2 Finding the Scale of a Drawing Architecture In a scale drawing, a walk is 2 inches long. The actual wall is 12 feet long. Find the scale of the drawing. Solution Write a ratio using corresponding side lengths of the scale drawing and the actual wall. Then simplify the ratio so that the numerator 2 in. Length of wall in scale drawing Length of actual wall Simplify. Answer: The drawing's scale is The scale of a scale Example 3 Finding a Dimension of a Scale Model drawing or scale model can be written A model of the Sears Tower in Chicago has a scale of 1:103. The without units if the height of the Sears Tower's observation deck is about 412 meters. measurements have Find the height of the observation deck of the model. the same unit. For example, the scale Solution 1 cm : 2 m can be written without units Write a proportion using the scale. as follows. Scale Dimension of model 1 cm : 2 m with **Dimension of Sears Tower** 1 cm 2 m Cross products property Divide each side by 200 cm Scale Answer: The height of the model's observation deck is 4 model's 1:200 without units Checkpoint 2. The height of one antenna on the Sears Tower is about 521.1 meters. Find the height of the antenna on the model to the nearest tenth of a meter.