

Name: _____

Date: _____

Word Problems Using Similar Triangles

“On a sunny day, a 1.75 m tall student casts a shadow 0.6 m long. Estimate the height of a building if it casts a shadow 16.8 m long.”

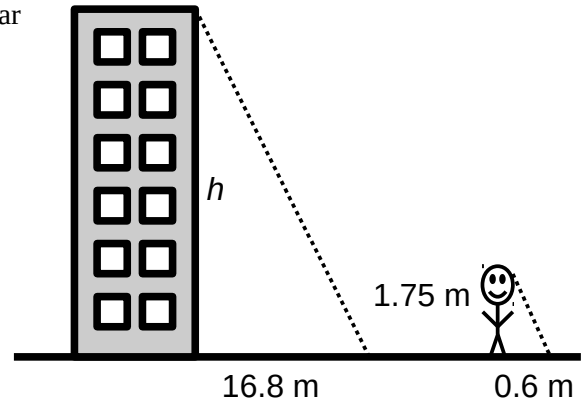
1. Draw a diagram, if not provided. The triangles are similar because the sun’s rays are parallel.

2. Set Up a Proportion

$$\frac{h}{1.75} = \frac{16.8}{0.6}$$

3. Identify a Pattern or Solve Using Cross-Multiplication

$$\begin{aligned} 0.6 h &= 1.75 \times 16.8 \\ 0.6 h &= 29.4 \\ \frac{0.6 h}{0.6} &= \frac{29.4}{0.6} \\ h &= 49 \end{aligned}$$

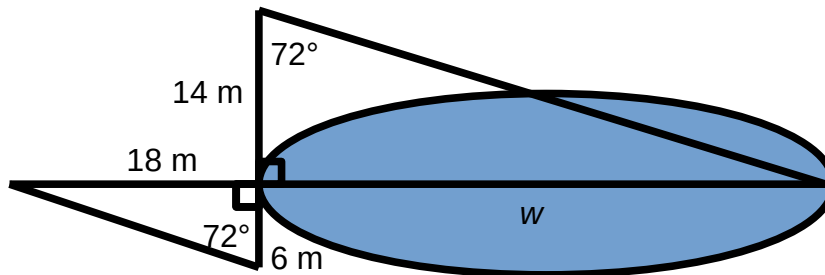


4. Answer the Question

“The height of the building is 49 m.”

5. Examples

- A. A surveyor estimates the width, w , of a pond by making the following measurements. How wide is the pond?



The two triangles are similar because they have the same angle measurements. Set up a proportion.

$$\frac{w}{18} = \frac{14}{6}$$

Cross-multiply to solve for w .

$$\begin{aligned} 6 w &= 18 \times 14 \\ 6 w &= 252 \\ \frac{6 w}{6} &= \frac{252}{6} \\ w &= 42 \end{aligned}$$

Therefore, the pond is 42 m wide.