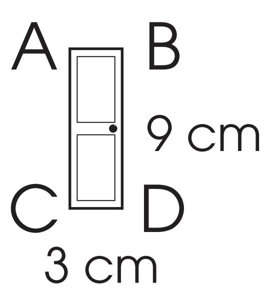
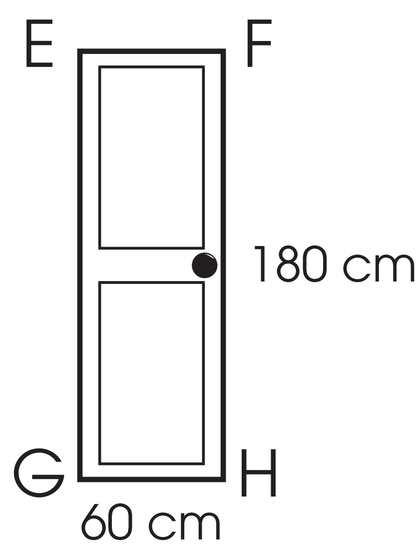
Display Master: Key Ideas: Similar Figures

- For 2 figures to be similar, all corresponding angles must be congruent and all pairs of corresponding lengths must be proportional, or form the same ratio.
- To find the missing length in a pair of similar figures, set up a proportion comparing corresponding side lengths.

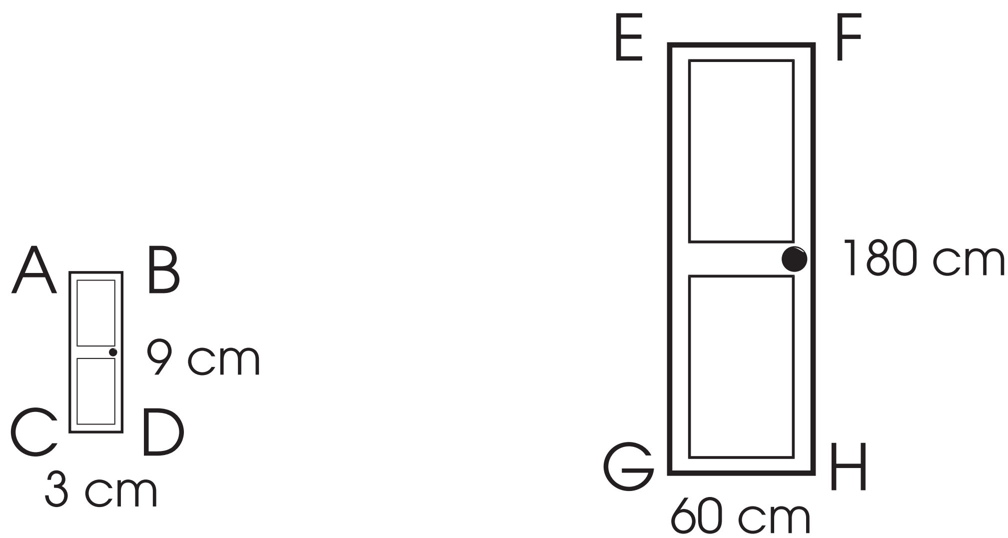
Display Master: Door A

A scale drawing of a door measures 9 centimeters high and 3 centimeters wide. The actual door measures 180 centimeters high and 60 centimeters wide. The scale drawing and the actual door are similar figures.





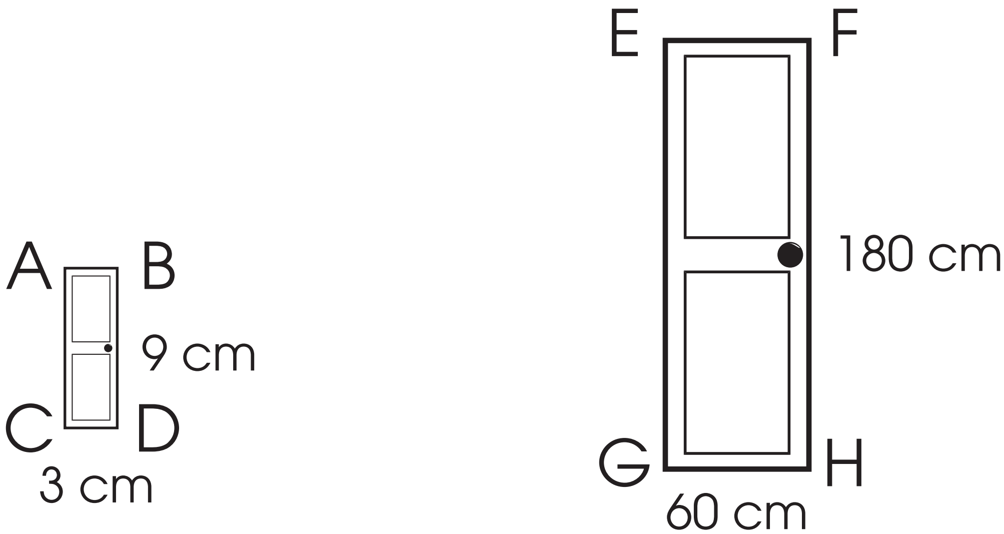
Display Master: Door B



$$\frac{\overline{CD}}{\overline{GH}} \text{ and } \frac{\overline{BD}}{\overline{FH}}$$

$$\frac{3\text{ cm}}{60\text{ cm}} \text{ and } \frac{9\text{ cm}}{180\text{ cm}}$$

Display Master: Door C



$$\frac{\overline{CD}}{\overline{GH}} \text{ and } \frac{\overline{BD}}{\overline{FH}}$$

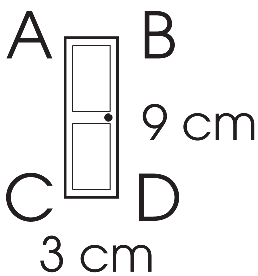
$$\frac{3\text{ cm}}{60\text{ cm}} \text{ and } \frac{9\text{ cm}}{180\text{ cm}}$$

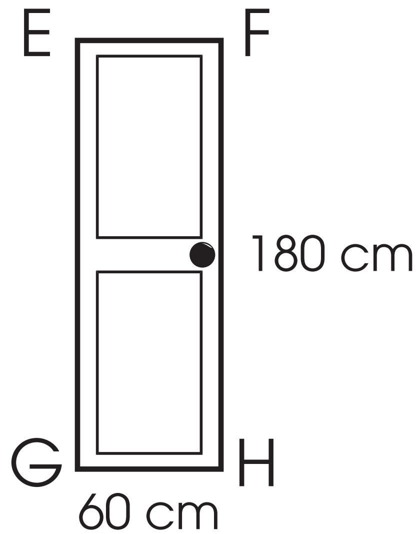
$$\frac{3}{60} \text{ and } \frac{9}{180}$$

$$\frac{3 \div 3}{60 \div 3} \qquad \frac{9 \div 9}{180 \div 9}$$

$$\frac{1}{20} = \frac{1}{20}$$

Display Master: Door D

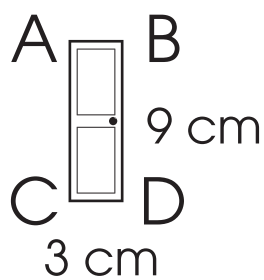


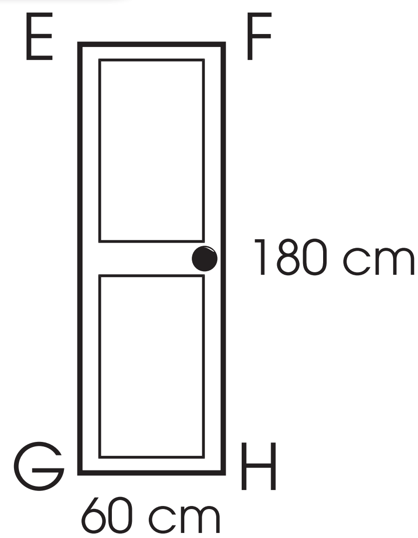


$$\frac{\overline{BD}}{\overline{CD}} \text{ and } \frac{\overline{FH}}{\overline{GH}}$$

$$\frac{9 \text{ cm}}{3 \text{ cm}} \text{ and } \frac{180 \text{ cm}}{60 \text{ cm}}$$

Display Master: Door E





$$\frac{\overline{BD}}{\overline{CD}} \text{ and } \frac{\overline{FH}}{\overline{GH}}$$

$$\frac{9\text{ cm}}{3\text{ cm}} \text{ and } \frac{180\text{ cm}}{60\text{ cm}}$$

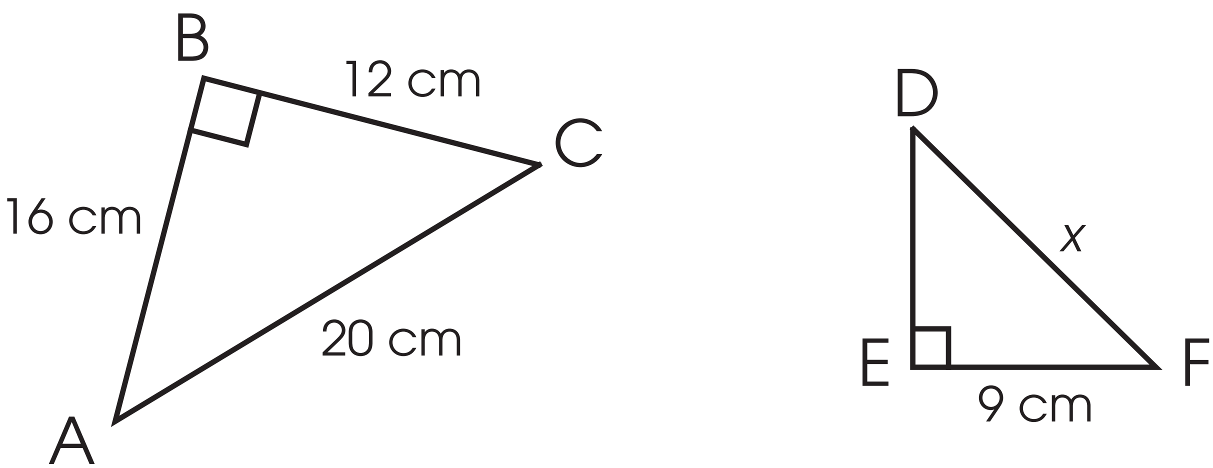
$$\frac{9}{3} \text{ and } \frac{180}{60}$$

$$\frac{9 \div 3}{3 \div 3} \qquad \frac{180 \div 60}{60 \div 60}$$

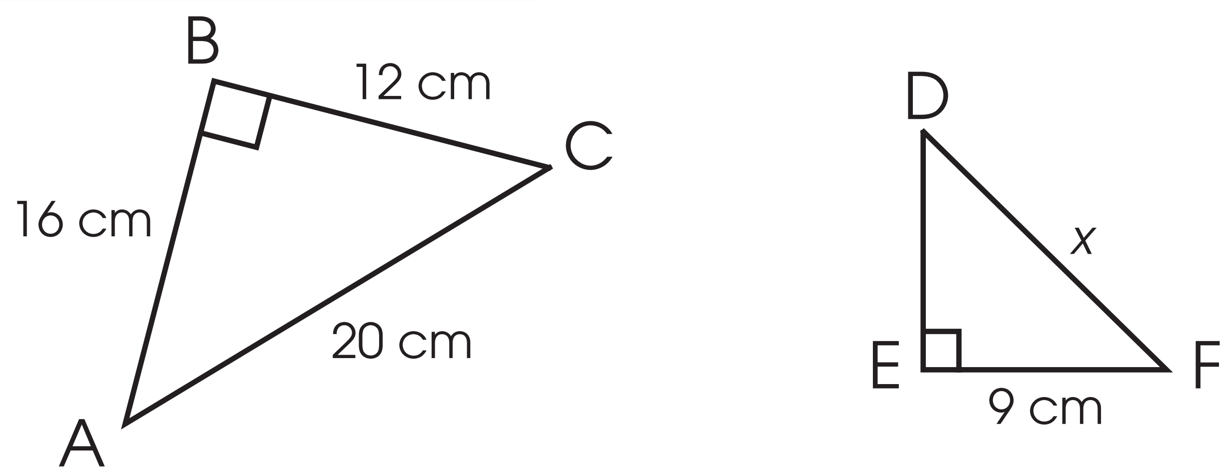
$$\frac{3}{1} = \frac{3}{1}$$

Display Master: Triangles A

The 2 triangles shown below are similar. If the shortest length of the smaller triangle is 9 centimeters, what is the length of the longest side, or hypotenuse, of the smaller triangle?



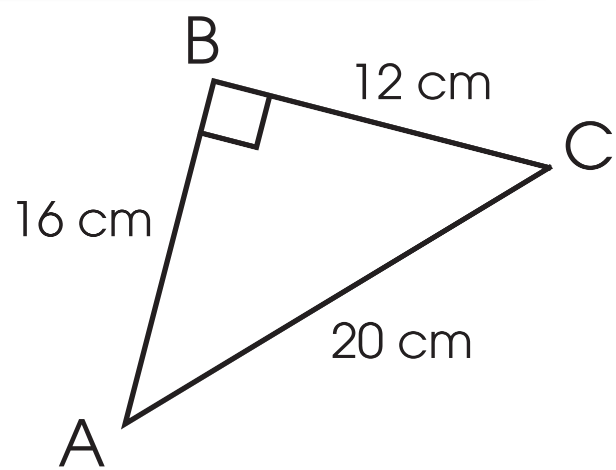
Display Master: Triangle B

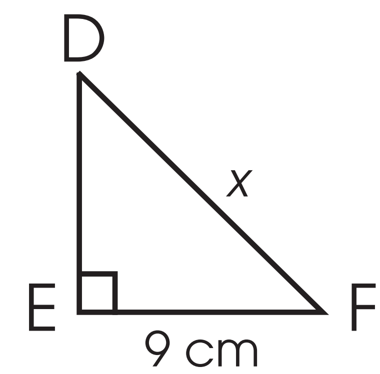


$$\frac{\text{shortest of smaller}}{\text{shortest of larger}} = \frac{\text{hypotenuse of smaller}}{\text{hypotenuse of larger}}$$

$$\frac{9\text{ cm}}{12\text{ cm}} = \frac{x}{20\text{ cm}}$$

Display Master: Triangle C





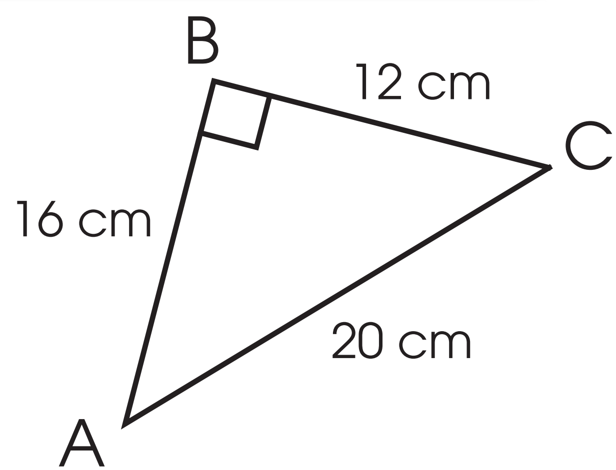
$$\frac{\text{shortest of smaller}}{\text{shortest of larger}} = \frac{\text{hypotenuse of smaller}}{\text{hypotenuse of larger}}$$

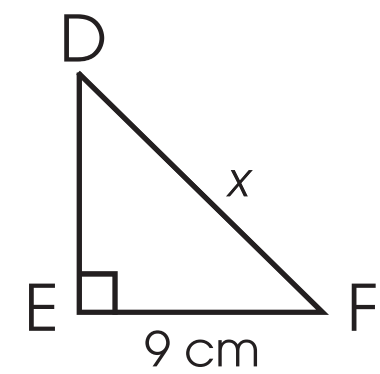
$$\frac{9\text{ cm}}{12\text{ cm}} = \frac{x}{20\text{ cm}}$$

$$12x = 180$$

$$x = 15\text{ cm}$$

Display Master: Triangle D

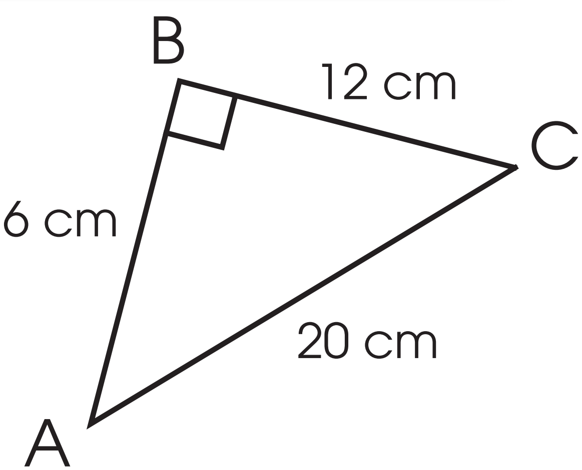


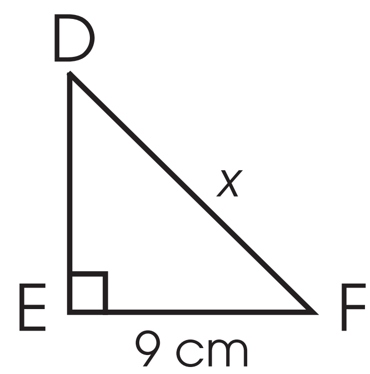


$$\frac{\text{shortest of larger}}{\text{hypotenuse of larger}} = \frac{\text{shortest of smaller}}{\text{hypotenuse of smaller}}$$

$$\frac{12\text{ cm}}{20\text{ cm}} = \frac{9\text{ cm}}{x}$$

Display Master: Triangle E





$$\frac{\text{shortest of larger}}{\text{hypotenuse of larger}} = \frac{\text{shortest of smaller}}{\text{hypotenuse of smaller}}$$

$$\frac{12 \text{ cm}}{20 \text{ cm}} = \frac{9 \text{ cm}}{x}$$

$$180 = 12x$$

$$15 \text{ cm} = x$$