

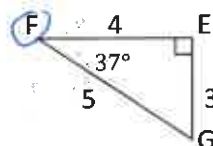
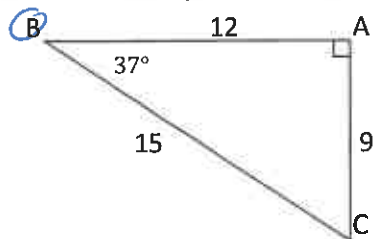
Unit 4: Scale Factors & Similarity

4.3 Similar Triangles

Similar Figures:

- same shape but different size (enlargement/reduction)
- ① equal corresponding angles
- ② proportionally corresponding sides

Ex. Determine if each pair of triangles are similar. If so, write a similarity statement.



- ① corresponding angles
 $\angle B = \angle F = 37^\circ$
 $\angle A = \angle E = 90^\circ$
 $\angle C = \angle G = 53^\circ$

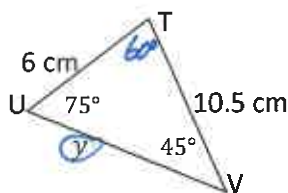
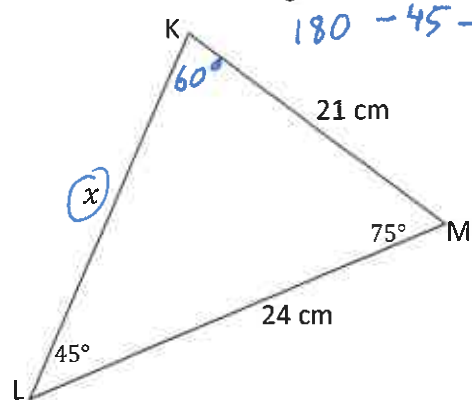
② corresponding sides

$$\frac{AB}{EF} = \frac{12}{4} = 3 \quad \frac{BC}{FG} = \frac{15}{5} = 3 \quad \frac{AC}{EG} = \frac{9}{3} = 3$$

$$\Delta ABC \sim \Delta EFG$$

$$\text{or } \Delta BCA \sim \Delta FGE$$

Ex. Determine if each pair of triangles are similar. If so, write a similarity statement. Calculate the measures of the missing sides to the nearest tenth.



★ to prove similarity with triangles showing ① or ② is sufficient

$$\Delta KLM \sim \Delta TVU$$

★ use proportions

find x

$$\frac{x}{10.5} = \frac{21}{6}$$

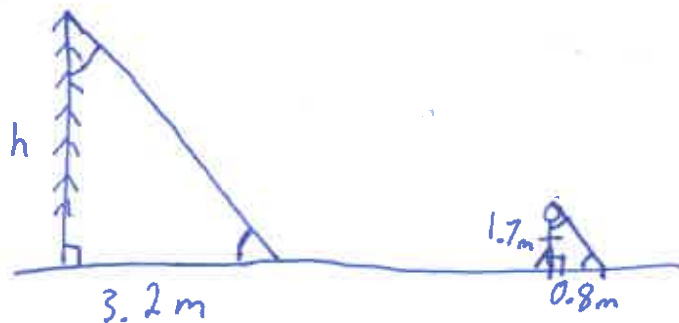
$$x = \frac{10.5(21)}{6} = 36.8 \text{ cm}$$

$$\frac{y}{24} = \frac{6}{21}$$

$$y = \frac{24(6)}{21}$$

$$y = 6.9 \text{ cm}$$

Ex. A tree casts a shadow 3.2 m long. At the same time a 1.7 m tall man standing near the tree casts a shadow 0.8 m long. Determine the height of the tree to the nearest tenth.



$$\frac{h}{1.7} = \frac{3.2}{0.8}$$

$$h = \frac{1.7(3.2)}{0.8} = 6.8 \text{ m}$$