

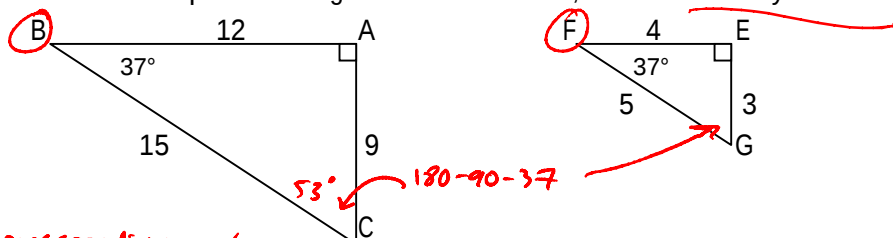
Unit 4: Scale Factors & Similarity

4.3 Similar Triangles

Similar Figures: - same shape but different size (enlargements/reductions)

- 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

$$\frac{AB}{EF} = \frac{12}{4}$$

$$\frac{BC}{FG} = \frac{15}{5}$$

$$\frac{AC}{EG} = \frac{9}{3}$$

$$= 3$$

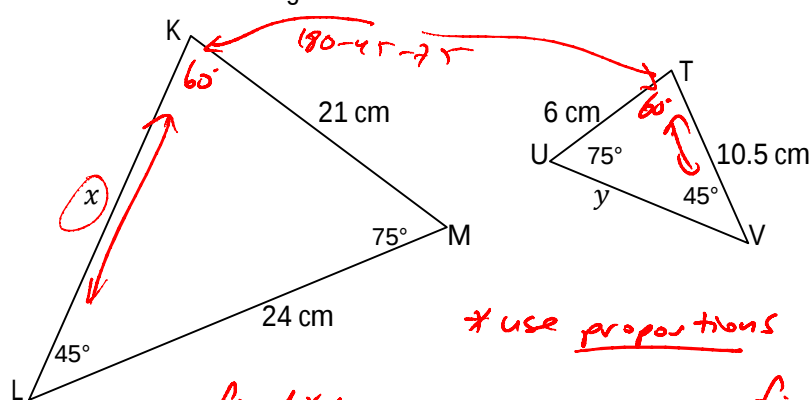
$$= 3$$

$$= 3$$

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

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

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:

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

OR

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

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

find y:

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

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

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

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.



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

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