

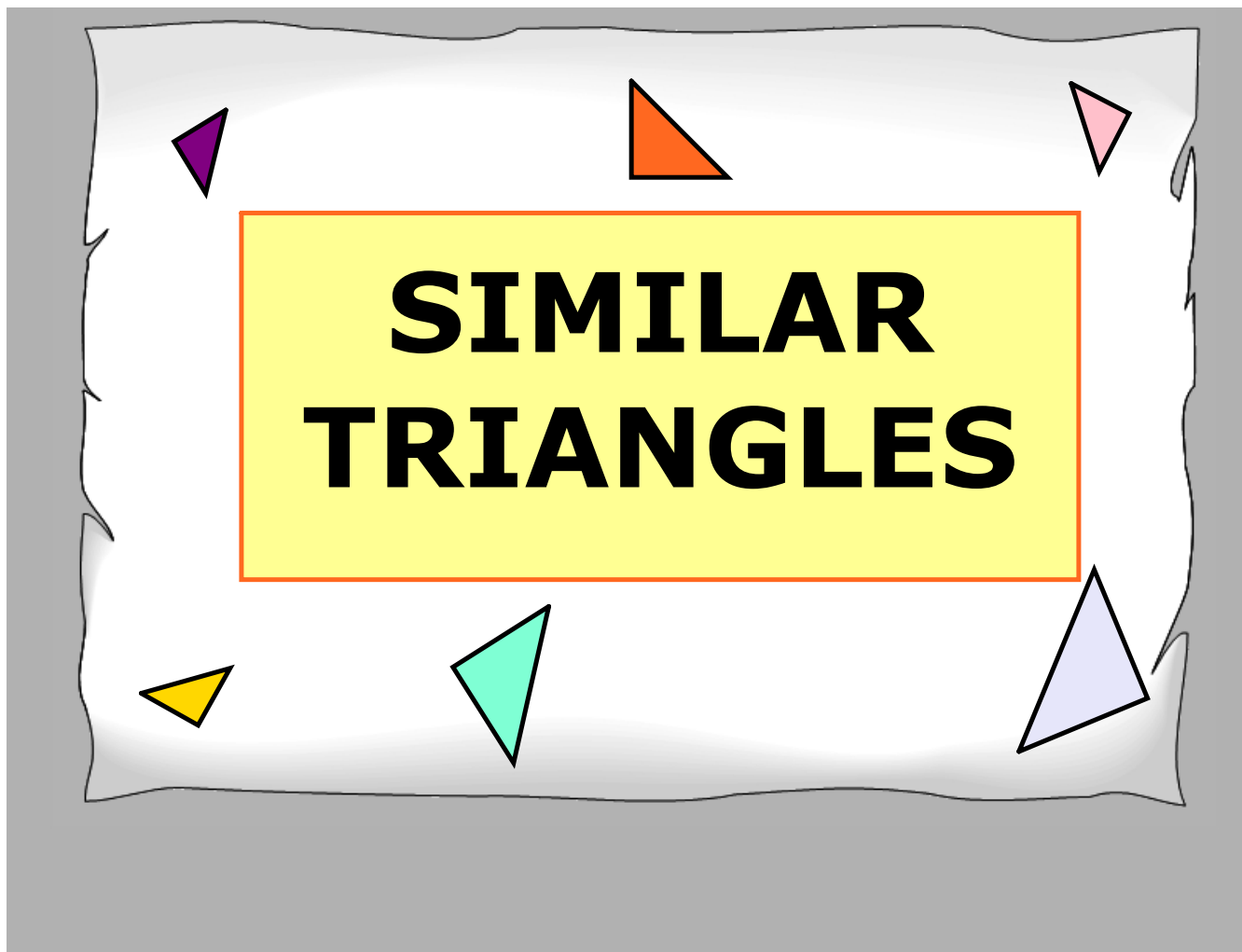
Curriculum Outcome

G4 Solve problems that involve angle relationships between parallel, perpendicular and transversal lines.

G5 Demonstrate an understanding of angles, including acute, right, obtuse, straight and reflex, by: drawing, replicating and constructing, bisecting, and solving problems.

Student Friendly:

Angle Properties involving Parallel Lines and Transversal



Similar Triangles

Triangles are said to be similar if they have the following properties...

Property 1

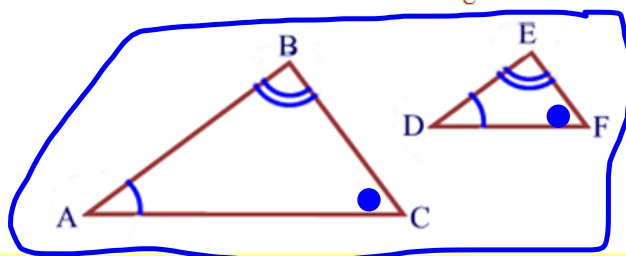
Corresponding pairs of angles are equal

Property 2

Corresponding pairs of sides are proportional

There are three accepted methods of proving triangles similar:**AA A**

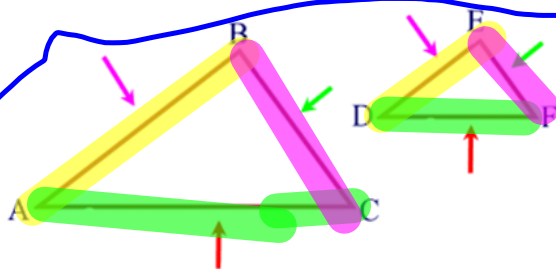
If two angles of one triangle are equal to two angles of another triangle the triangles are similar.

Theorem: If two angles of one triangle are congruent to two angles of another triangle, the triangles are similar.If: $\angle A \cong \angle D$ $\angle B \cong \angle E$ Then: $\triangle ABC \sim \triangle DEF$

SSS
for
similarity

The three side in the two triangles are in proportion.

Theorem: If the three sets of corresponding sides of two triangles are in proportion, the triangles are similar.



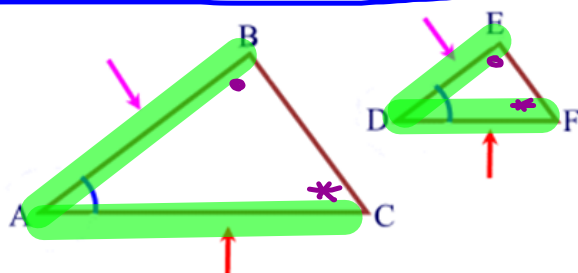
$$\text{If: } \frac{AB}{DE} = \frac{AC}{DF} = \frac{BC}{EF}$$

$$\text{Then: } \triangle ABC \sim \triangle DEF$$

SAS for similarity

Two sides in each triangle are proportionate and the angle between the two sides are equal in each triangle.

Theorem: If an angle of one triangle is congruent to the corresponding angle of another triangle and the lengths of the sides including these angles are in proportion, the triangles are similar.

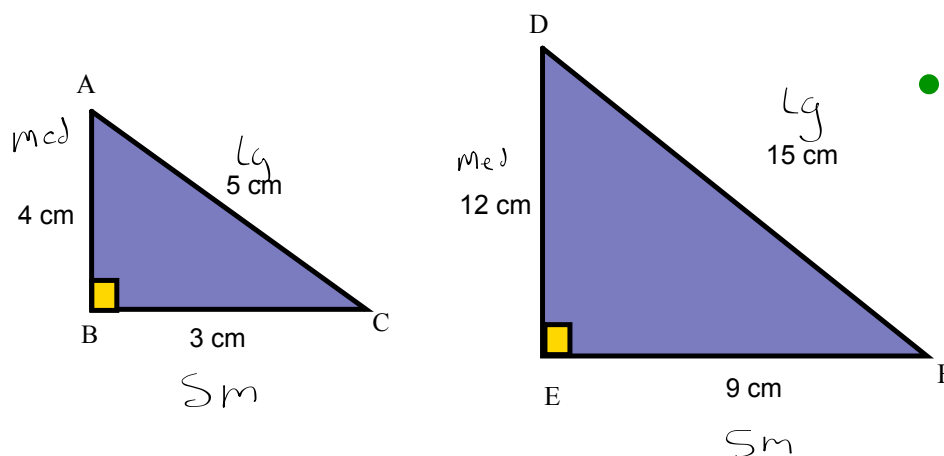


If: $\angle A \cong \angle D$

$$\frac{AB}{DE} = \frac{AC}{DF}$$

Then: $\triangle ABC \sim \triangle DEF$

Prove Similarity



Sm

m∠

$$\frac{BC}{EF} = \frac{3}{9}$$

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

lg

$$\frac{AC}{DF} = \frac{5}{15}$$

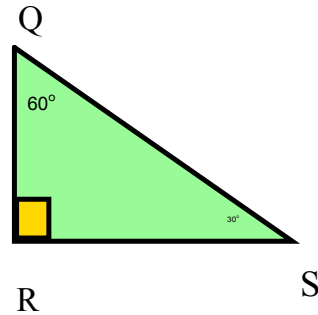
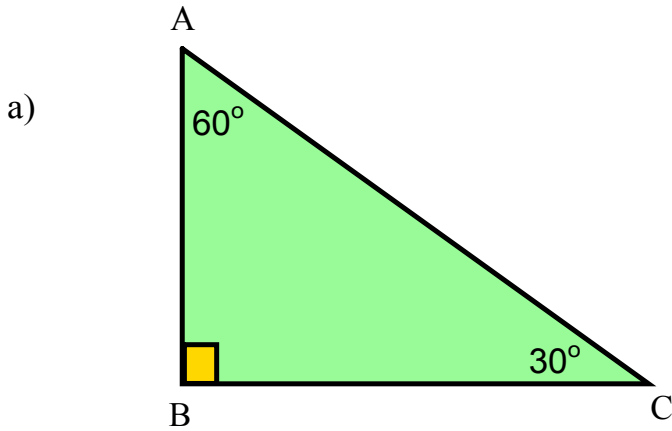
$$= \frac{1}{3}$$

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

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

$$\triangle ABC \sim \triangle DEF \text{ (SSS)}$$

Prove Similarity

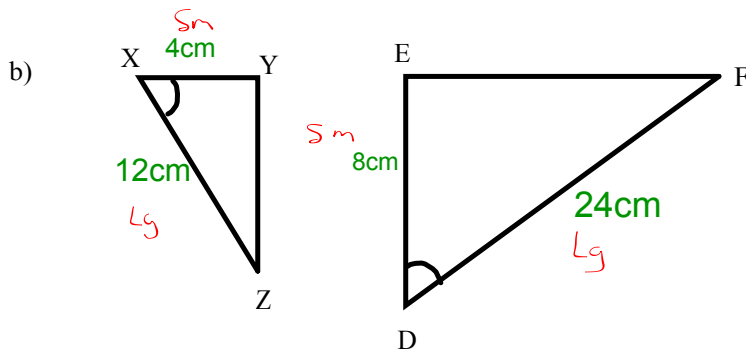


$$\angle A = \angle Q$$

$$\angle B = \angle R$$

$$\angle C = \angle S$$

$\therefore \triangle ABC \sim \triangle QRS$ (AAA)



Sm

$$\frac{8}{4}$$

$$= 2$$

$$\angle X = \angle D$$

Lg

$$\frac{24}{12}$$

$$= 2$$

$\therefore \triangle XYZ \sim \triangle DFE$ (SAS)

Remember

Triangles are said to be similar if they have the following properties...

Property 1

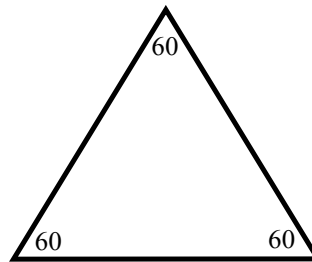
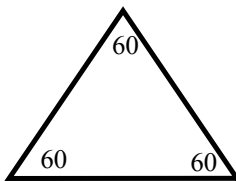
Corresponding pairs of angles are equal

Property 2

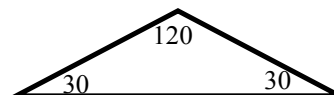
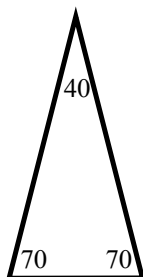
Corresponding pairs of sides are proportional

Are the triangles similar? Why or Why not?

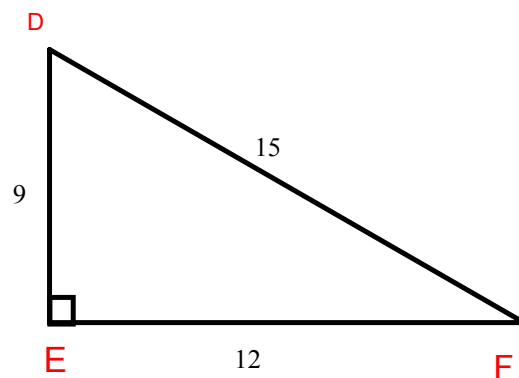
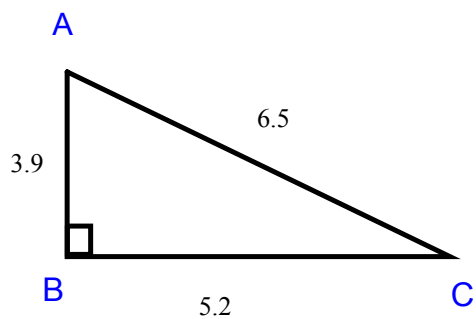
a)



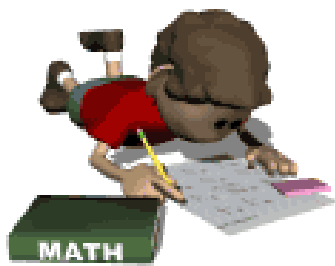
b)



c)



$$\triangle ABC \sim \triangle DEF \text{ (SSS)}$$



• In class assignmnet

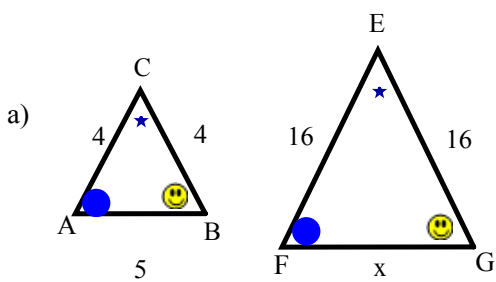
Similar Triangle
Worksheet



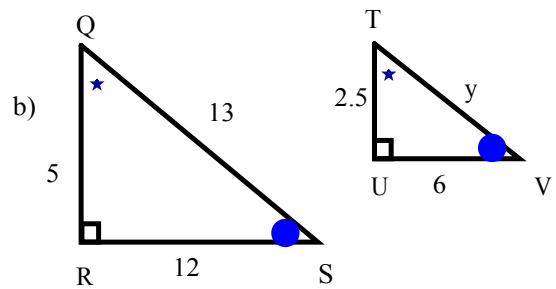
This assignment was completed in class and then students started another assignment.

In class Assignment

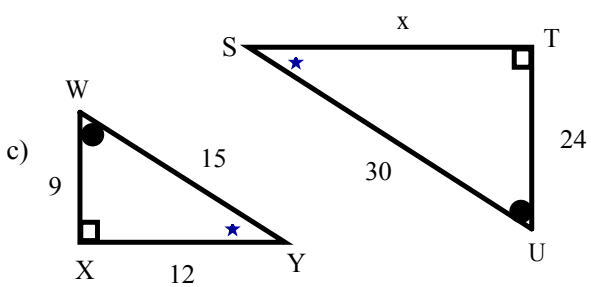
Exercise: Find the Unknown Side of the Similar Triangles



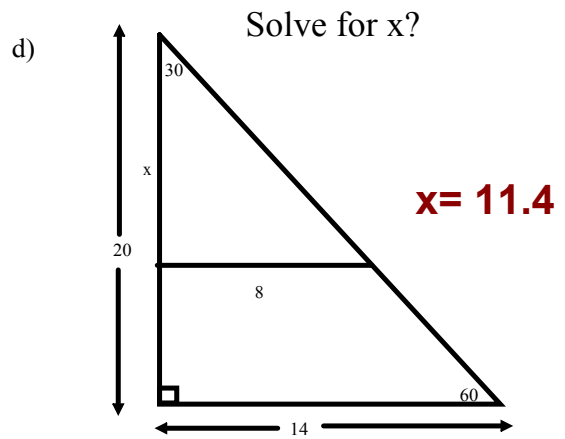
x = 20



y = 6.5



x = 18



Solve the following proportions.

In class Assignment

$$\text{a) } \frac{x}{3} = \frac{10}{5}$$

$$\text{b) } \frac{7}{x} = \frac{2}{3}$$

$$\text{c) } \frac{3}{4} = \frac{x}{8}$$

$$\text{d) } \frac{6}{5} = \frac{8}{y}$$

$$\text{e) } \frac{4}{5} = \frac{12}{z}$$

$$\text{f) } \frac{9}{2} = \frac{x}{4}$$

$$\text{g) } \frac{x}{15} = \frac{3}{5}$$

$$\text{h) } \frac{5}{1} = \frac{x}{3}$$

$$\text{i) } \frac{3}{x} = \frac{18}{24}$$

$$\text{j) } \frac{4}{3} = \frac{8}{x}$$

$$\text{k) } \frac{x}{2} = \frac{10}{5}$$

$$\text{l) } \frac{6}{x} = \frac{10}{25}$$

$$\text{m) } \frac{8}{x} = \frac{6}{3}$$

$$\text{n) } \frac{5}{3} = \frac{45}{x}$$

$$\text{o) } \frac{2.5}{x} = \frac{2}{7}$$

$$\text{p) } \frac{x}{12.5} = \frac{.8}{4}$$

Attachments

Similar Triangles.docx