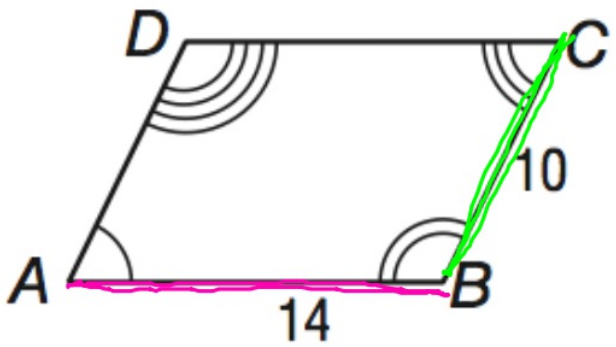
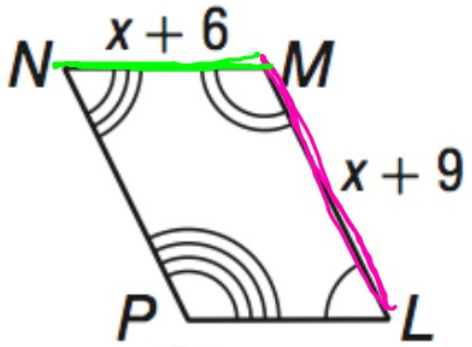
Geometry

BELL WORK

The quadrilaterals are similar. Find the value of x.





$\frac{14}{x+9} = \frac{10}{x+6}$

$14(x+6) = 10(x+9)$

$14x + 84 = 10x + 90$

$-10x - 84 \quad -10x - 84$

$\frac{4x}{4} = \frac{6}{4}$

$x = 1\frac{1}{2}$

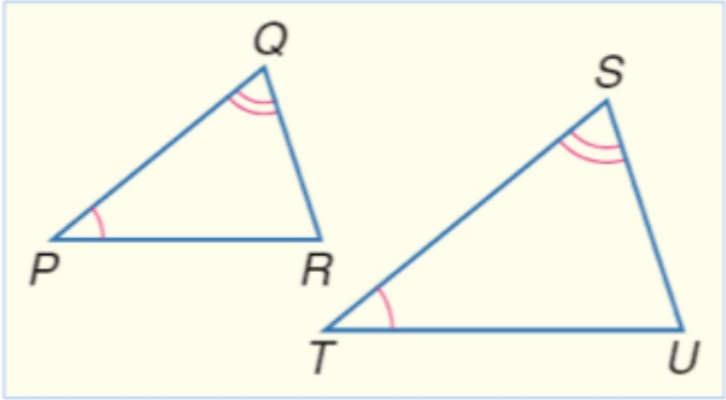
7-3 Similar Triangles

Today you will: Identify similar triangles and use similar triangles to solve problems

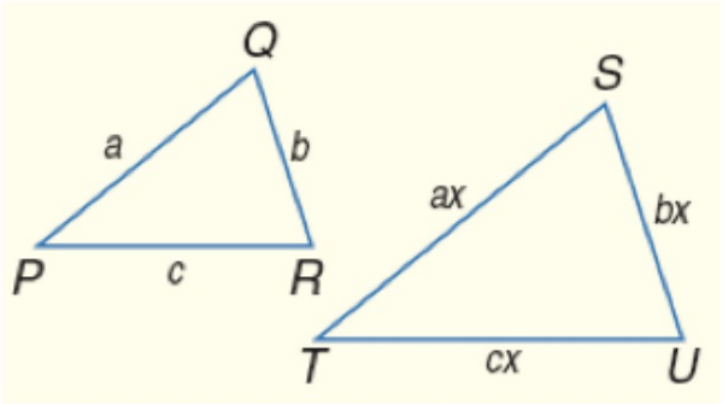
Content standard: G-SRT Similarity: Understand similarity in terms of similarity transformations

Angle-Angle (AA) Similarity –

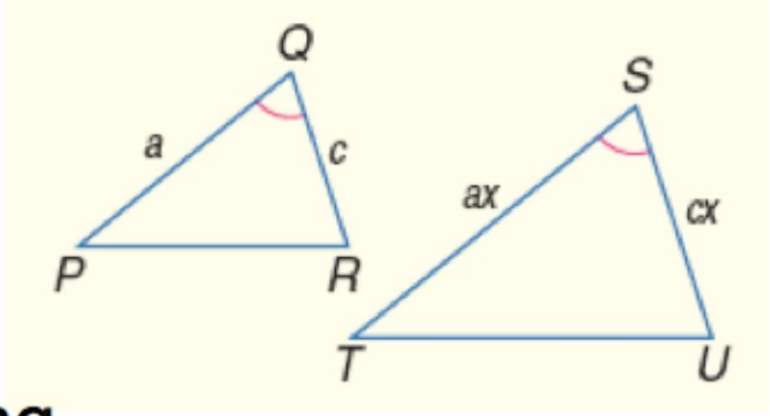
if 2 **angles** of a triangle are **congruent** to 2 **angles** of another triangle, then the trianlges are **similar**.



Side-side-side (SSS) Similarity –
if the measures of the corresponding **sides** of 2 triangles are **proportional**, then the triangles are **similar**.



Side-angle-side (SAS) Similarity –



If the measures of 2 **sides** of a triangle are **proportional** to the measures of 2 corresponding **sides** of another triangle and the **included angles** are **congruent**, then the triangles are **similar**.

Similarity of triangles is **reflexive**, **symmetric**, and **transitive**.

R: Any $\triangle$ is similar to itself

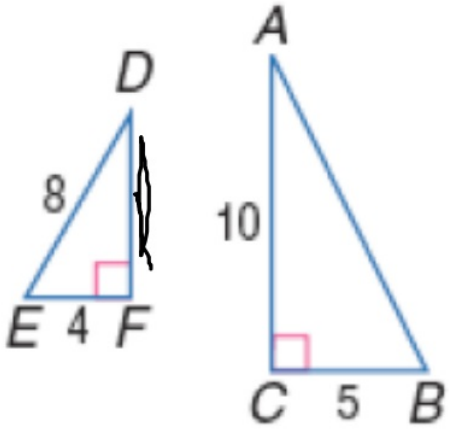
S: if $\triangle 1 \sim \triangle 2$

then $\triangle 2 \sim \triangle 1$

T: If $\triangle 1 \sim \triangle 2$ and $\triangle 2 \sim \triangle 3$

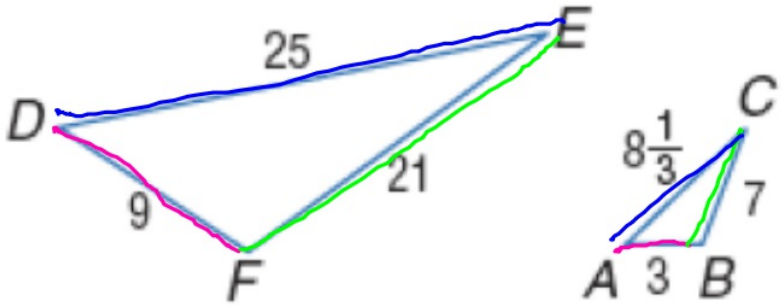
then $\triangle 1 \sim \triangle 3$

Are the triangles similar? Name the similarity postulate & write similarity statement, $\triangle DFE \sim \triangle ABC$



Not similar

8 & 10 are not Corresponding sides

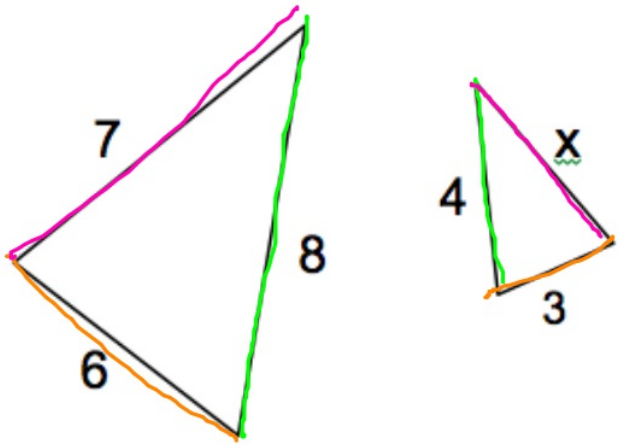


$\frac{9}{3} \stackrel{?}{=} \frac{21}{7} \stackrel{?}{=} \frac{25}{8\frac{1}{3}}$

$3 = 3 = 3$

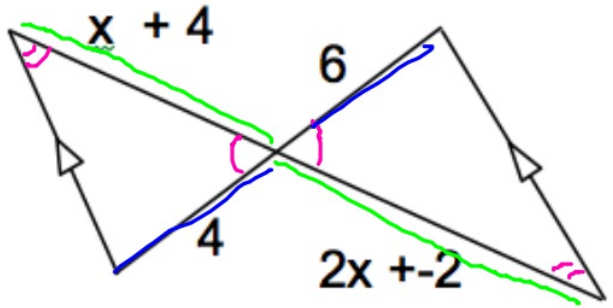
Yes, SSS $\triangle \sim$

The triangles are similar. Find x.



$$\frac{8}{4} = \frac{6}{3} = \frac{7}{x}$$

$x = 3.5$



$$\frac{x+4}{2x+(-2)} = \frac{4}{6}$$

$$6(x+4) = 4(2x+(-2))$$

$$6x + 24 = 8x - 8$$

$$-6x + 8 \qquad -6x + 8$$

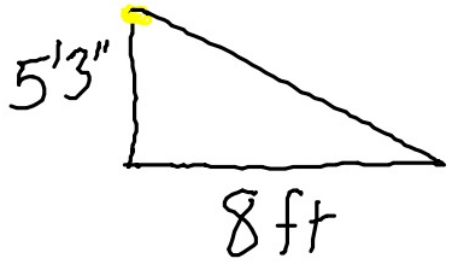
$$\frac{32}{2} = \frac{2x}{2}$$

$x = 16$

A lighthouse casts a 128-foot shadow. A nearby lamppost that measures 5 feet 3 inches casts an 8-foot shadow. What is the height of the lighthouse?

$5\text{ft}\,3\text{in} = 5\frac{3}{12} = 5\frac{1}{4}$

5.25 ft



$$\frac{h}{5.25} = \frac{128}{8}$$

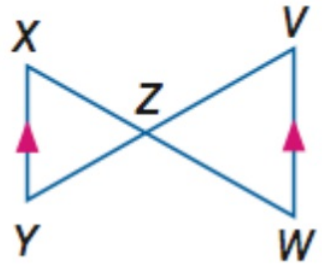
$$\frac{8h}{8} = \frac{672}{8}$$

$$h = 84\text{ ft}$$

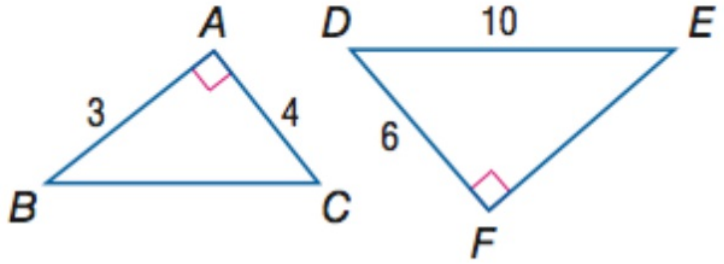
Assignment 7.3: pg 479 – 480 # 1-8, 19, 20

Determine whether the triangles are similar. If so, write a similarity statement. Explain your reasoning.

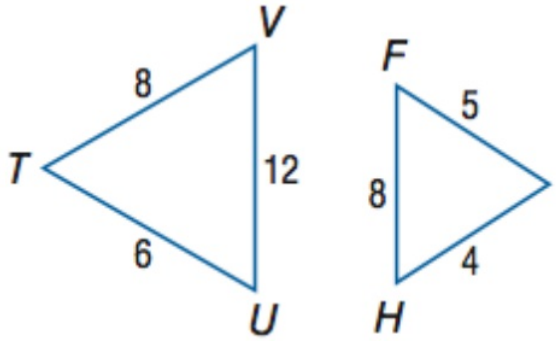
1.



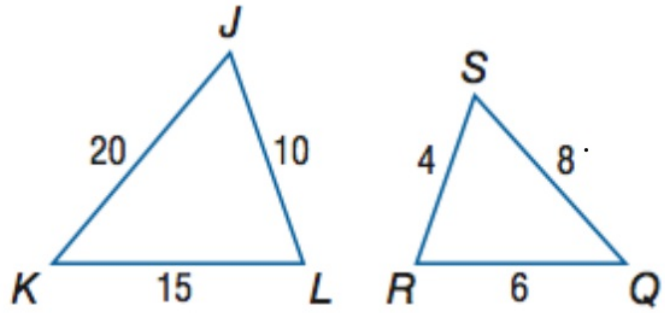
2.



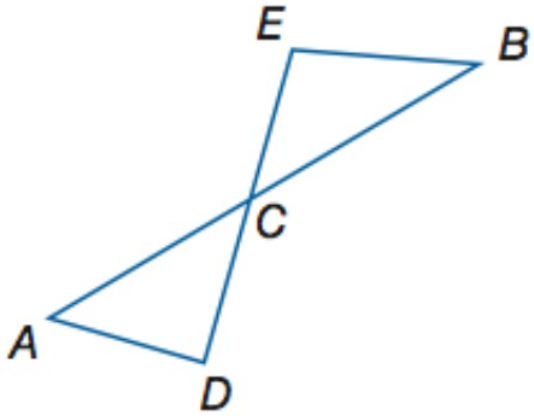
3.



4.



5. MULTIPLE CHOICE In the figure, $\overline{AB}$ intersects $\overline{DE}$ at point C. Which additional information would be enough to prove that $\triangle ADC \sim \triangle BEC$?



A $\angle DAC$ and $\angle ECB$ are congruent.

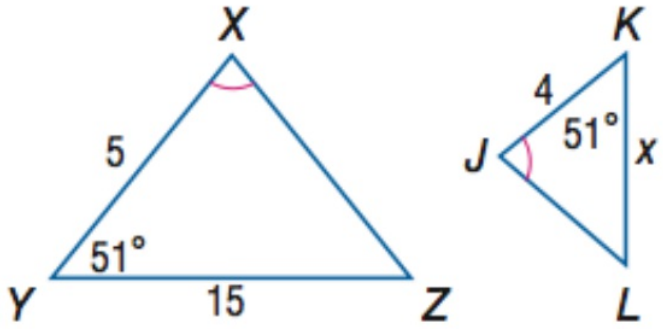
B $\overline{AC}$ and $\overline{BC}$ are congruent.

C $\overline{AD}$ and $\overline{EB}$ are parallel.

D $\angle CBE$ is a right angle.

ALGEBRA Identify the similar triangles. Find each measure.

6. KL



7. VS