Bellwork
3.9.12

1. How do we know if two triangles are similar?

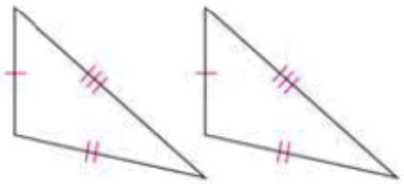
2. Give me three equivalent ratios to: $\frac{3}{6}$

Ratio	A comparison of two quantities.	to, :
Proportion	A statement that two ratios are equal.	
Scale	Compares length in a drawing to actual length.	
Similar	(1) Corresponding angles are congruent. (2) Corresponding sides are proportional.	
Similarity Ratio	Ratio of lengths of corresponding sides.	

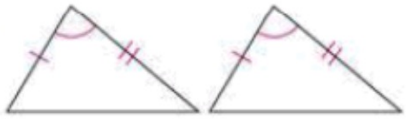
Bellwork
4.8.13

Name the postulate or theorem you can use to prove the triangles congruent.

1.



2.



3.

7.3 Proving Triangles Similar

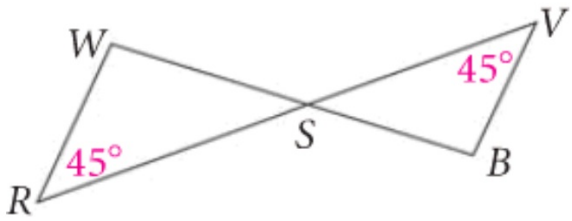
Postulate 7-1 **Angle-Angle Similarity (AA ~) Postulate**

If two angles of one triangle are congruent to two angles of another triangle, then the triangles are similar.

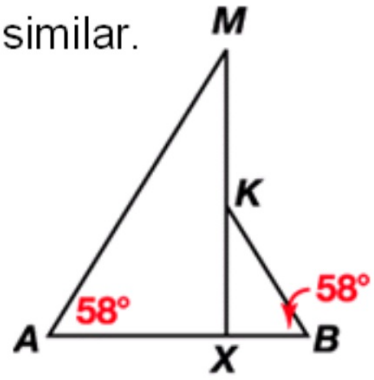
$\triangle TRS \sim \triangle PLM$

1 EXAMPLE Using the AA ~ Postulate

Explain why the triangles are similar.
Write a similarity statement.

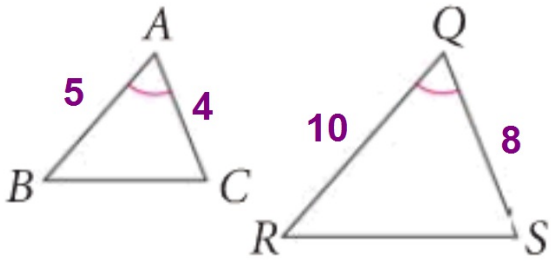


$\overline{MX} \perp \overline{AB}$. Explain why the triangles are similar. Write a similarity statement.



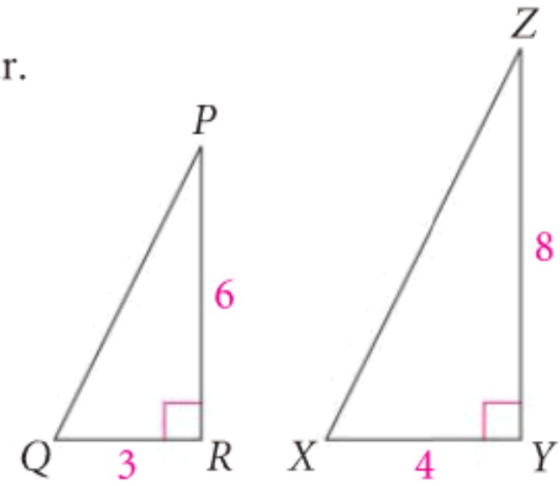
Theorem 7-1 **Side-Angle-Side Similarity (SAS ~) Theorem**

If an angle of one triangle is congruent to an angle of a second triangle, and the sides including the two angles are proportional, then the triangles are similar.



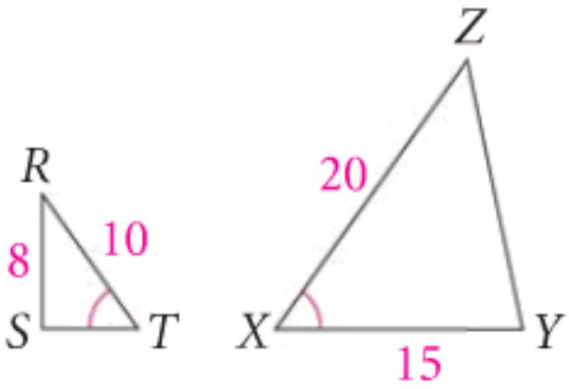
2 EXAMPLE Using Similarity Theorems

Explain why the triangles must be similar.
Write a similarity statement.



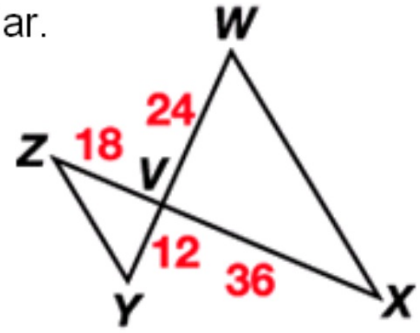
Bellwork
4.9.13

Can you conclude the triangles are similar? If so, write a similarity statement and name the postulate or theorem you used. If not, explain.



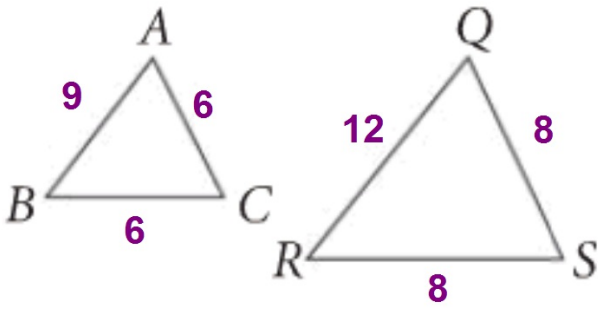
Explain why the triangles must be similar.

Write a similarity statement.

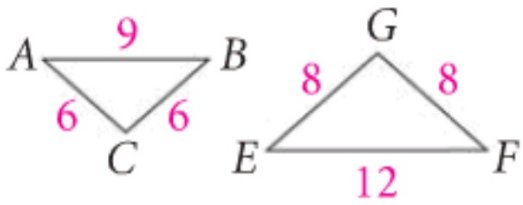


Theorem 7-2 **Side-Side-Side Similarity (SSS ~) Theorem**

If the corresponding sides of two triangles are proportional, then the triangles are similar.

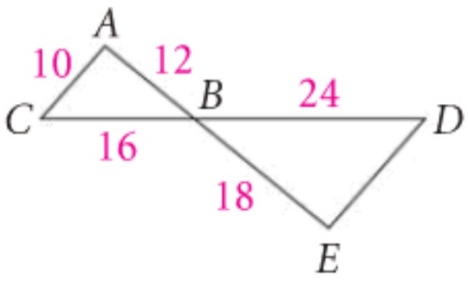


Explain why the triangles must be similar.
Write a similarity statement.

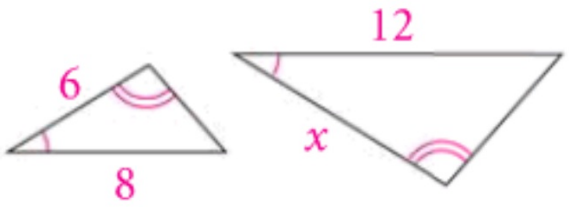


3 EXAMPLE Finding Lengths in Similar Triangles

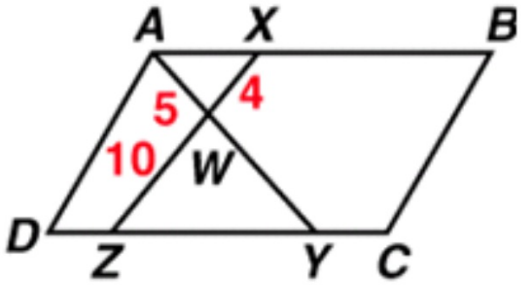
Are the Triangles similar? If they are, find DE.



Find the value of x in the figure at the right.



ABCD is a parallelogram. Find *WY*.



Bellwork
4.10.13

1. What are the three shortcuts to proving triangles similar?

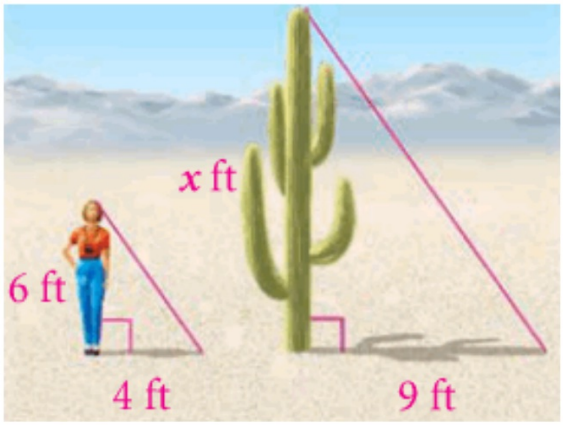
2. Are all equilateral triangles similar?

3. Are all isosceles triangles similar?

Indirect Measurement: **when you use similar triangles to find distances that are difficult to measure directly.**

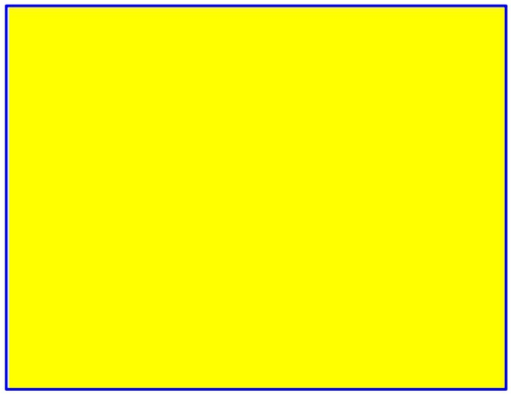
4 EXAMPLE

In sunlight, a cactus casts a 9-ft shadow. At the same time a person 6 ft tall casts a 4-ft shadow. Use similar triangles to find the height of the cactus.

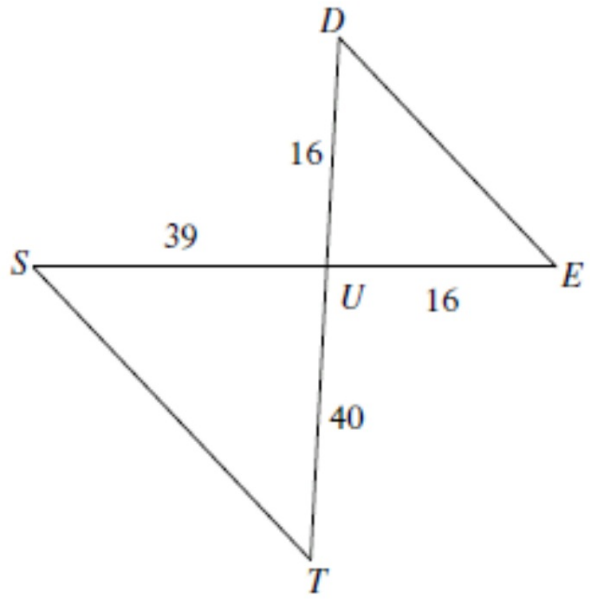


Bellwork
4.11.13

Joan places a mirror 24 ft from the base of a tree. When she stands 3 ft from the mirror, she can see the top of the tree reflected in it. If her eyes are 5 ft above the ground, how tall is the tree?

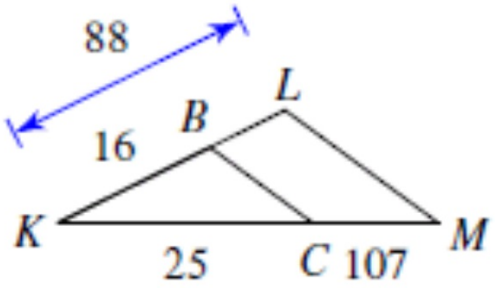


1)



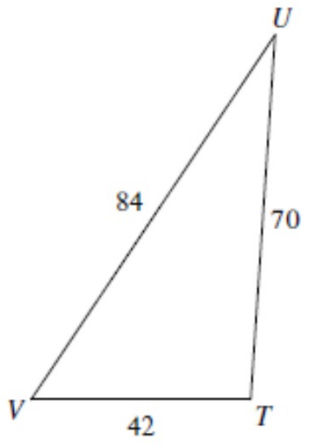
$\Delta UTS \sim$ _____

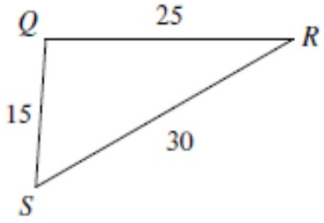
6)



$\Delta KLM \sim$ _____

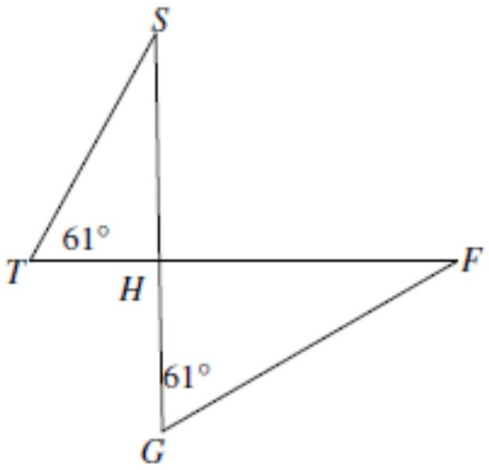
7)





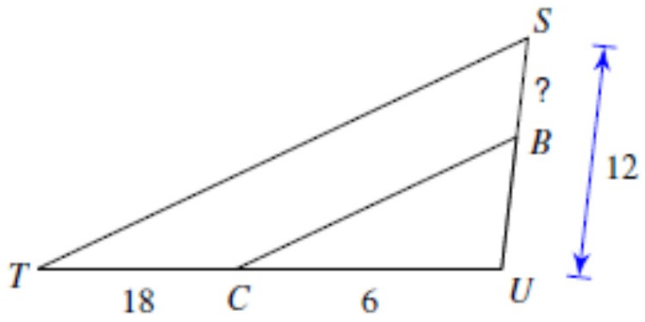
$\Delta TUV \sim$ _____

9)



$\Delta HGF \sim$ _____

15)



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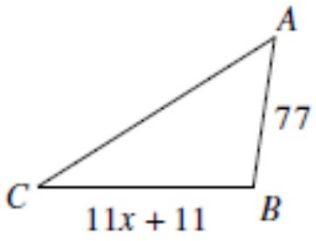

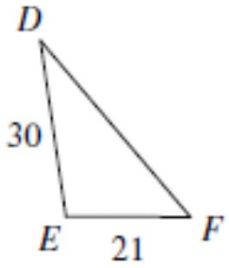

Bellwork
3.14.12

Happy Pi Day!

Solve each proportion.

1. $\frac{x}{8} = \frac{18}{24}$

2. $\frac{2}{3} = \frac{x}{7}$

3. $\frac{15}{4} = \frac{18}{x}$

Simplifying Radicals

1 EXAMPLE

Simplify the expressions $\sqrt{2} \cdot \sqrt{8}$ and $\sqrt{294} \div \sqrt{3}$.

2 EXAMPLE

Write $\sqrt{\frac{4}{3}}$ in simplest form.

Simplify each expression.

$$\sqrt{5} \cdot \sqrt{10}$$

$$\sqrt{128} \div \sqrt{2}$$

$$\frac{\sqrt{24}}{\sqrt{3}}$$

$$\sqrt{\frac{25}{20}}$$

$$\frac{\sqrt{6} \cdot \sqrt{3}}{\sqrt{9}}$$