Write your questions here!

4.3 Proving Triangles are Similar

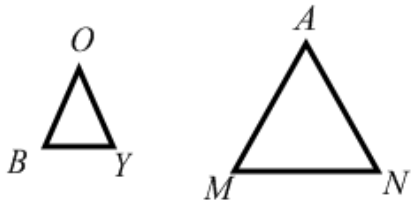
NOTES

Are these similar?

Angle Angle Postulate		
Postulate If two angles of one triangle are congruent to two angles of another triangle,	**If…** $\angle C \cong \angle D$ and $\angle A \cong \angle O$	**Then…**

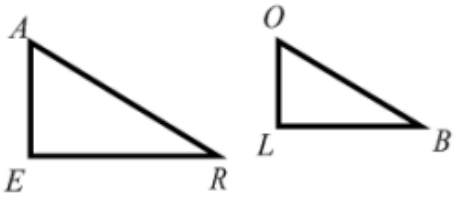
Side Angle Side Theorem		
Postulate If an angle of one triangle is congruent to an angle of a second triangle, and the sides that include the two angles are proportional, then	**If…** $\frac{BO}{MA} = \frac{\quad}{\quad}$ and $\angle O \cong \angle A$	**Then…**

Example:

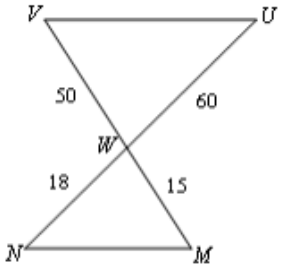


Side Side Side Postulate		
Postulate If the corresponding sides of two triangles are proportional,	**If…** $\frac{EA}{LO} = \frac{AR}{OB} = \_\_\_$	**Then…**

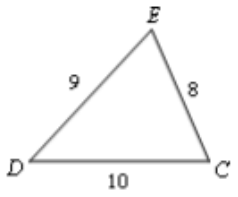
Example:

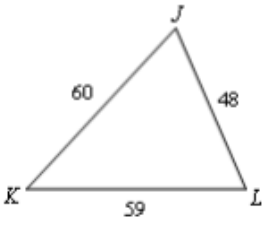


Determine if the following triangles are similar. If so, state the reason why.

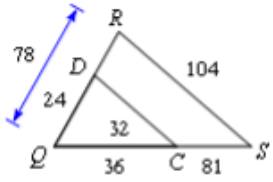


$\Delta WVU \sim$ _____

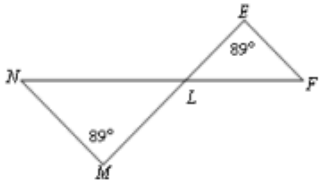




$\Delta LKJ \sim$ _____



$\Delta QRS \sim$ _____



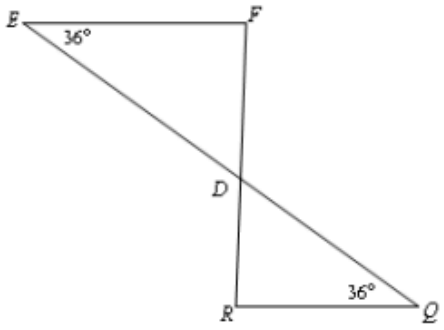
$\Delta LMN \sim$ _____

Summarize your notes!

4.3 PRACTICE

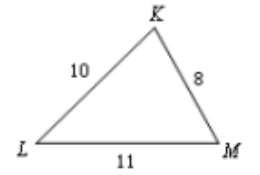
State if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.

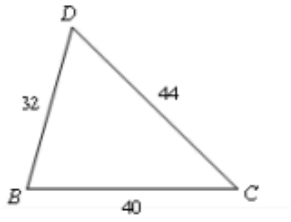
1.



$\Delta DEF \sim$ _____

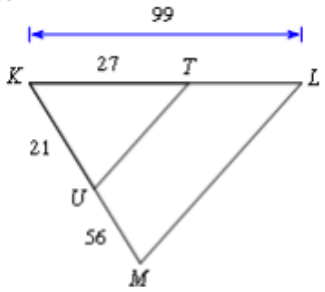
2.





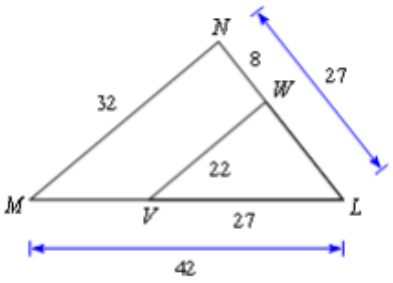
$\Delta DCB \sim$ _____

3.



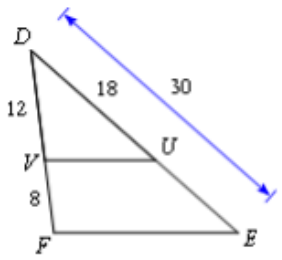
$\Delta KLM \sim$ _____

4.



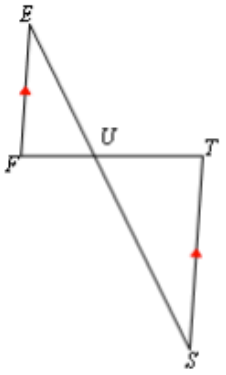
$\Delta LMN \sim$ _____

5.



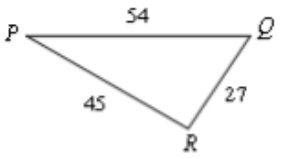
$\Delta DEF \sim$ _____

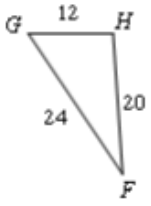
6.



$\Delta UTS \sim$ _____

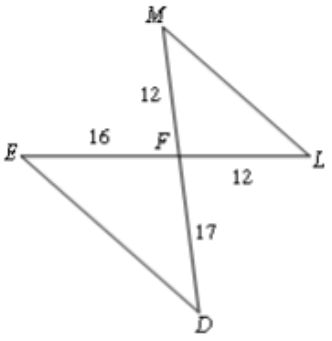
7.





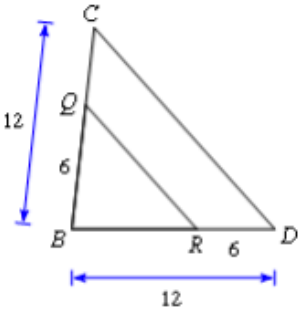
$\Delta PQR \sim$ _____

8.



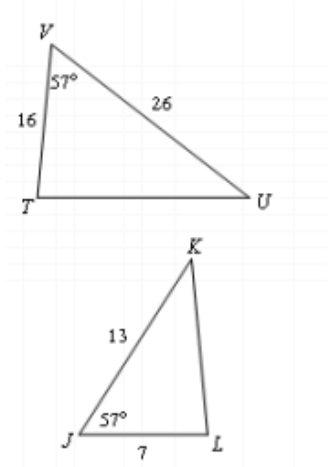
$\Delta FED \sim$ _____

9.



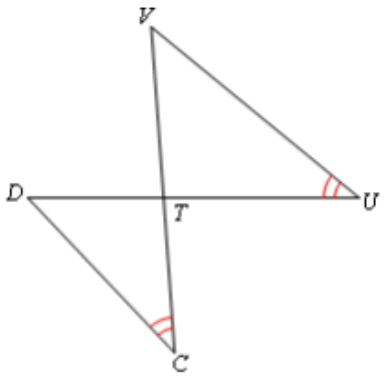
$\Delta BCD \sim$ _____

10.



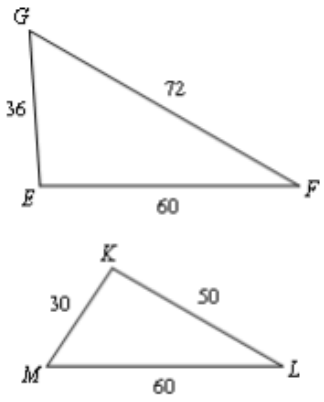
$\Delta VUT \sim$ _____

11.



$\Delta TUV \sim$ _____

12.

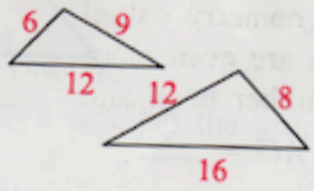


$\Delta EFG \sim$ _____

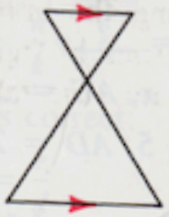
ALGEBRA REVIEW		
SOLVE **Simplify your solution** $3x^2 = 54$	**GRAPH** $y = -\frac{x}{4} - 2$	**MULTIPLY** $(x-5)(x+5)$
SOLVE **Simplify your solution** $x^2 - 7 = 21$	**GRAPH** $y = 2 + x$	**FACTOR** $x^2 + 14x + 45$

State the postulate or theorem you can use to prove that two triangles are similar.

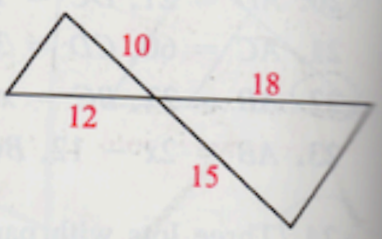
1.



2.



3.



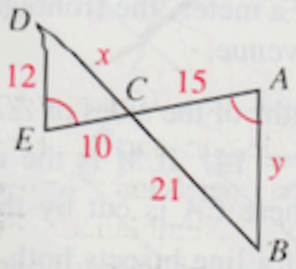
4. Complete.

a. $\triangle ABC \sim$?

b. $\frac{AB}{?} = \frac{AC}{?} = \frac{BC}{?}$

c. $\frac{15}{?} = \frac{21}{?}$, and $x =$?

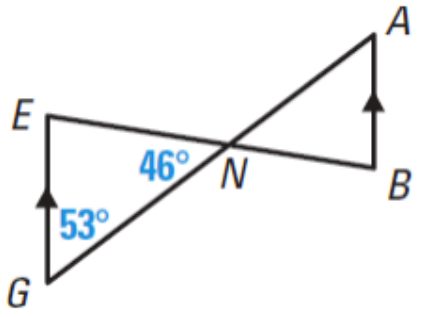
d. $\frac{15}{?} = \frac{?}{12}$, and $y =$?



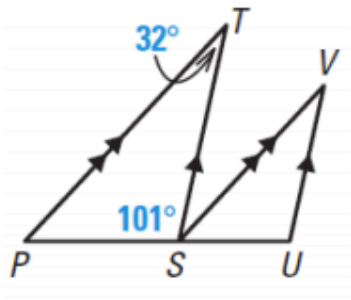
Watch the application walk through video if you need extra help getting started!

Fill in the missing angles and then state if the triangles in each pair are similar. If so, state how you know they are similar and complete the similarity statement.

3.



4.



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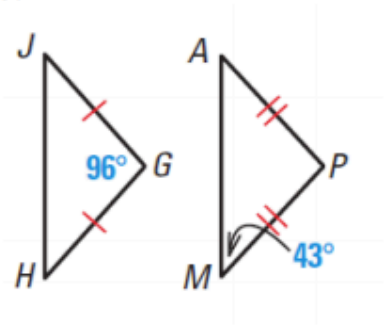
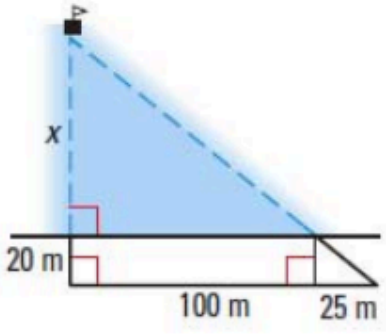
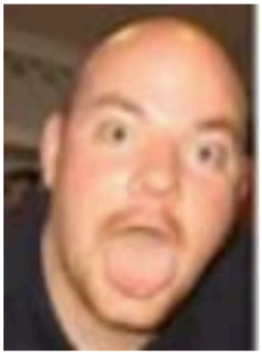


6. Mr. Sullivan is lost at sea and freaking out in his little sailboat. He will swim for the shore if he is 70 meters or less. Find x and decide if Sully should swim for it (his life depends on it).

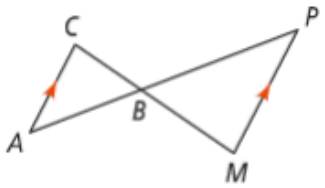




7. Fill in the blanks

Given: $\overline{MP} \parallel \overline{AC}$

Prove: $\triangle ABC \sim \triangle PBM$



STATEMENTS	REASONS
1. $\overline{MP} \parallel \overline{AC}$	1.
2. $\angle C \cong \angle M$	2.
3. $\angle CBA \cong \angle MBP$	3.
4. $\Delta ABC \sim \Delta PBM$	4.

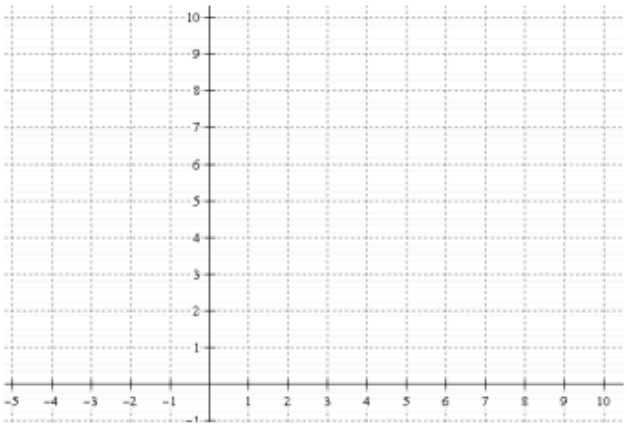
8. **COORDINATE GEOMETRY**

a. Plot the following points to make a triangle.

P (-4,1)
C (-4,3)
S (-1,1)

b. Plot the following points to make a triangle.

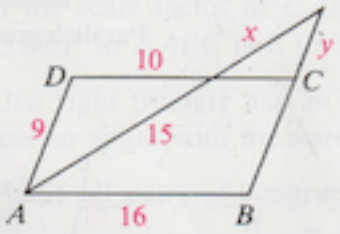
R (1, 3)
A (1, 9)
T (10, 3)



c. Use *SAS*~ to prove $\Delta PCS \sim \Delta RAT$

In Exercises 18 and 19 *ABCD* is a parallelogram. Find the values of x and y.

18.



19.