Geometry **7.3 Proving Triangles Similar (day 1)** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_per\_\_\_\_

***Objective:*** *The students will be able to use the AA, SAS, and SSS Similarity Postulate/ Theorems.*

Remember…

Two polygons are ***similar if*** corresponding angles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**AND** if the lengths of the corresponding sides are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

* Therefore, for the similar triangles below, complete the statements about the angles and sides;

  Angles: Sides:

 A \_\_\_ 

 \_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_

**What information do we need to tell if 2 triangles are similar?**

**…so we only need to know 2 pairs of angles are congruent to know the 2 triangles are similar. (AA~)**

Are the 2 triangles similar? Explain how you know. List any theorems that help you find necessary information.

1.  2) 3)

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**…so we only need to know 2 pairs of sides are proportional, and their included angles are congruent to know the 2 triangles are similar. (SAS~)**



**…so we only need to know that all the sides are proportional to know the 2 triangles are similar. (SSS~)**

4)

 \*\*\*\*You must check that ALL 3 pairs of sides are proportional!!

 Similarity statement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

There are 3 ways of proving 2 triangles similar…**AA~, SAS~, or SSS~**

5)

 Similarity statement \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6)

**PROOFS:** (yay! ☺)

7)



8)





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**PRACTICE**





7. 8.

Geometry **7.3 Proving Triangles Similar (day 2)** Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_per\_\_\_\_

***Objective:*** *The students will be able to use the AA, SAS, and SSS Similarity Postulate/ Theorems and indirect measurement to find missing side lengths.*

**If we know 2 triangles are similar, we can use proportions to find the lengths of unknown sides. Sometimes we need to use *‘indirect measurement’* to do this when lengths are hard to measure.**

**Shadow Method—**

**Case 1** -- Find the height of the tree using proportions.

Which postulate allows this to work? \_\_\_\_\_

**Case 2** -- Find the height of the flagpole using proportions.

Which postulate allows this to work? \_\_\_\_\_

**You Try;**

1. Your sister is 4 feet 6 inches tall and her shadow at a certain time of day is 6 feet long. The telephone pole that she is standing next to is casting a shadow that is 32 feet long at the same time of day. How tall is the telephone pole? (draw and label a diagram to help you)



**Mirror Method--**

***You try…***

1. Use the given information below to label the diagram

And find the height of the traffic light.



**HW Pg. 455- 456 # 7- 23 odd**