Name: _____ Per: _____

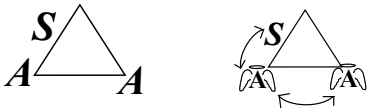
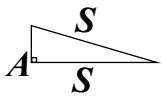
Properties that Prove Triangle Congruence and Similarity

SSS, **SAS**, **SSA**, **ASA**, **AAS**, and **AA** are the six properties that we use to *prove* that triangles are **congruent or similar**. You have learned how to identify these properties. Now, you need to know what they tell you.

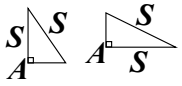
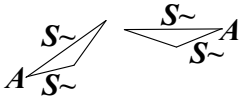
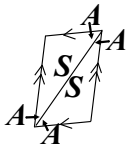
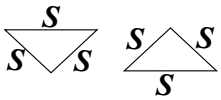
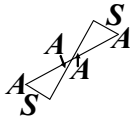
Properties that Prove Triangles **Congruent** *(Triangles marked with S & A)*	Properties that Prove Triangles **Similar** *(Triangles marked with S~ and A)*
SSS SAS ASA AAS SSA – *Only works* when the triangles are **right**. When it works, it's called **HL.**	**SSS SAS AA**

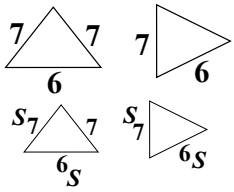
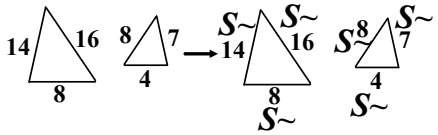
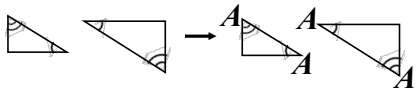
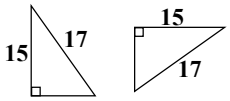
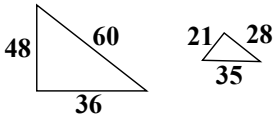
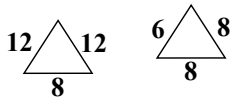
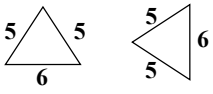
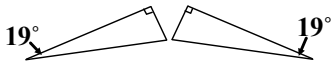
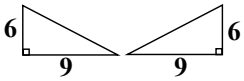
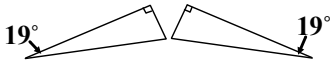
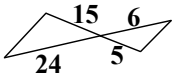
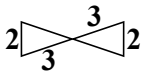
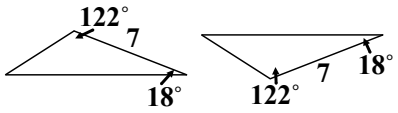
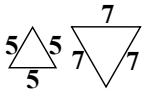
First let's practice identifying the properties from a picture, and then using that to determine if they're congruent or similar. Remember the rules:

1. An angle can only fly to another angle—it has to touch a side to connect to it!
2. **S** is used to mark **Congruent** sides, but **S~** is used to mark **Similar** sides

EXAMPLE  Property: AAS *(Congruent S)* [Congruent], Similar, or Neither?	1.  Property: _____ Congruent, Similar, or Neither?	2.  Property: _____ Congruent, Similar, or Neither?
EXAMPLE  Property: SSA *(Similar S~)* *Since this one is not on the Similar list,* Congruent, Similar, or [Neither]?	3.  Property: _____ Congruent, Similar, or Neither?	4.  Property: _____ Congruent, Similar, or Neither?

Below, you will do the same thing, except there will be two labeled triangles (because these properties are about *relationships between two triangles*).

EXAMPLE  Property: *SSA on rt. triangle* → **HL** [Congruent], Similar, or Neither?	5.  Property: _____ Congruent, Similar, or Neither?	6.  Property: _____ Congruent, Similar, or Neither?
EXAMPLE  *Think of them as separate triangles…* Property: ASA [Congruent], Similar, or Neither?	7.  Property: _____ Congruent, Similar, or Neither?	8.  Property: _____ Congruent, Similar, or Neither?

Determine if the triangles are **CONGRUENT** *SSS, SAS, ASA, AAS, or HL* *If you don't have one of these, then they are **not congruent.***	Determine if the triangles are **SIMILAR** *SSS, SAS, or AA* *If you don't have one of these, then they are **not similar.***	Mix and Match. Determine if the triangles are **congruent**, **similar**, or **neither**.
EXAMPLE  *SS is not on the list.* **NOT CONGRUENT**	**EXAMPLE**  *Small sides* $\frac{4}{8}=\frac{1}{2}$ *Medium* $\frac{7}{14}=\frac{1}{2}$ *Large* $\frac{8}{16}=\frac{1}{2}$ *All the sides are similar → SSS* **SIMILAR** (scale of $\frac{1}{2}$)	**EXAMPLE**  *The relationship is AA, which only works for SIMILAR, so…* **SIMILAR**
9. Are the triangles congruent? 	10. Are the triangles similar? If possible, determine the scale. 	11. Are the triangles congruent, similar, or neither? 
12. Are the triangles congruent? 	13. Are the triangles similar? If possible, determine the scale. 	14. Are the triangles congruent, similar, or neither? 
15. Are the triangles congruent? 	16. Are the triangles similar? If possible, determine the scale.  *Hint: Vertical angles are congruent!*	17. Are the triangles congruent, similar, or neither? 
18. Are the triangles congruent? 	19. Are the triangles similar? If possible, determine the scale. 	20. Are the triangles congruent, similar, or neither?