

Labeling Sides (S) and Angles (A)
Marking Congruence

You know how to name triangles SSS, SAS, SSA, ASA, AAS, & AA. Now, you need to learn a few more things...

First, you need to learn *when* to label a side with an S or an angle with an A.

These labels (S & A) are **used to mark a side or angle that matches** a side or angle on **another triangle**.

BE CAREFUL, though—a part can **only match once** (even if it's the same as more than one other part)

For Example:

Matches the 46° on the other triangle

Can't label this. 7 on the other triangle is already matched.

(Matches the 7's on the other triangle - pick one!)

(Matches the 7 on the other triangle)

Matches the 46° on the other triangle

<p>EXAMPLE: Label S's & A's.</p> <p>Labeled version:</p> <p>(An SAS relationship!)</p>	<p>EXAMPLE: Label S's & A's.</p> <p>Labeled version:</p> <p>(An AA relationship!)</p>	<p>1. Label S's & A's.</p>	<p>2. Label S's & A's.</p>
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Second, you need to know why we're labeling them this way, and what these labels tell us about the pairs of triangles.

If the triangles (labeled based on congruent sides and angles) have one of the **relationships on the list** below, then the **triangles are CONGRUENT**.

SSS, SAS, ASA, & AAS always work.

SSA only works when the triangle is **right**, then we call it: **HL**.

EXAMPLE

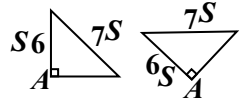
Determine the relationship between the triangles and if they are congruent.

The relationship is **ASA**, which is on the list: **SSS, SAS, ASA, & AAS** always work.

So, the triangles must be **congruent**.

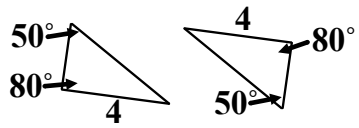
<p>3. Determine the relationship between the triangles and if they are congruent.</p> <p>Relationship: _____</p> <p>Congruent (circle one): YES or NO</p>	<p>4. Determine the relationship between the triangles and if they are congruent. (ignore extra information)</p> <p>Relationship: _____</p> <p>Congruent (circle one): YES or NO</p>	<p>5. Determine the relationship between the triangles and if they are congruent.</p> <p>Relationship: _____</p> <p>Congruent (circle one): YES or NO</p>
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EXAMPLE
Determine if the triangles are congruent. If yes, by what property?

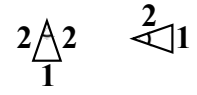


The relationship is **SSA**, which is on the list—it only works when the triangle is **right**, then we call it: **HL**. Since the triangles are right & SSA...
Yes, the triangles are congruent by the **HL** property.

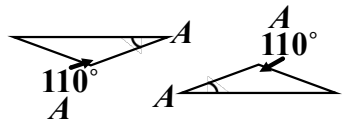
6. Determine if the triangles are congruent. If yes, by what property?



7. Determine if the triangles are congruent. If yes, by what property?

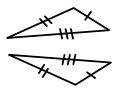


EXAMPLE
Determine if the triangles are congruent. If yes, by what property?

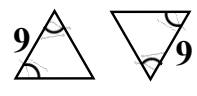


The relationship is **AA**, which is **not on the list**.
No. They are not congruent.

8. Determine if the triangles are congruent. If yes, by what property?

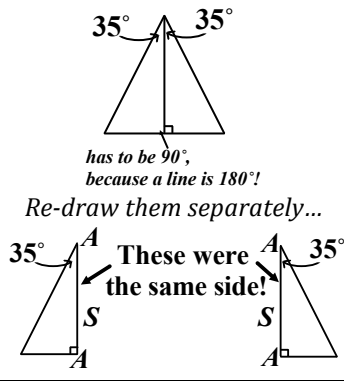


9. Determine if the triangles are congruent. If yes, by what property?



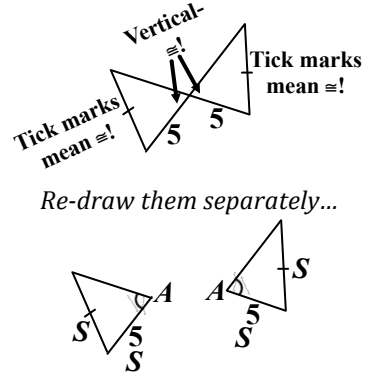
The same rules apply to triangles when they're connected. The trick is to re-draw them as separate triangles, but don't forget to mark the sides and angles that matched when the triangles were connected.

EXAMPLE
Determine if the triangles are congruent. If yes, by what property?



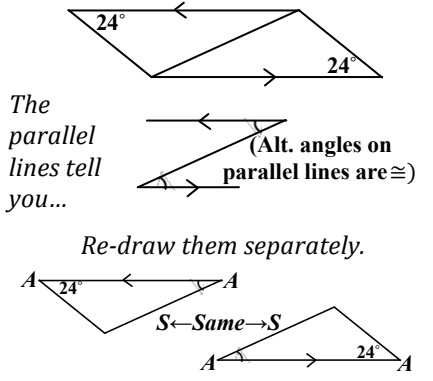
They are congruent by ASA!

EXAMPLE
Determine if the triangles are congruent. If yes, by what property?



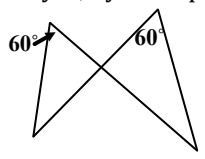
They are related by **SSA**, which only works when the triangles are right. These triangles **are not right**.
They are not congruent.

EXAMPLE
Determine if the triangles are congruent. If yes, by what property?

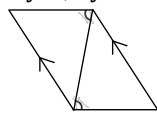


They are congruent by AAS!

10. Determine if the triangles are congruent. If yes, by what property?



11. Determine if the triangles are congruent. If yes, by what property?



12. Determine if the triangles are congruent. If yes, by what property?

