

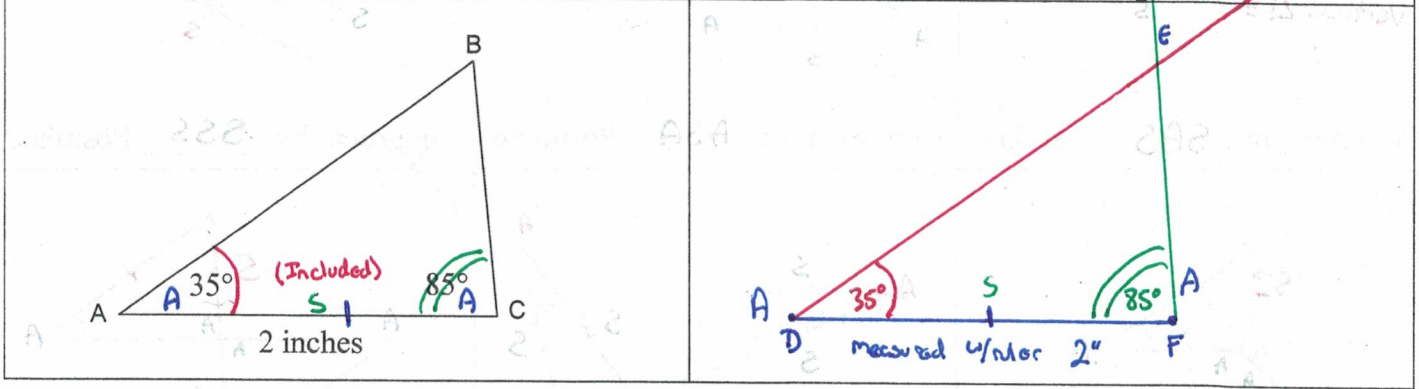
# Unit 5.2 - Triangle Congruency Part II: ASA and AAS Triangles

## Triangle Congruence by Angle-Side-Angle (ASA)

**Angle-Side-Angle (ASA) Postulate** → If two Angles and the Included side of one triangle are congruent to two angles and the included side in another triangle, then the triangles must be congruent  $\cong$ .

\*\* Note: To prove the ASA postulate you will need to do a construction using a protractor.

**Proving the ASA Postulate using a Construction - Prove that  $\triangle ABC$  is congruent to  $\triangle DEF$**

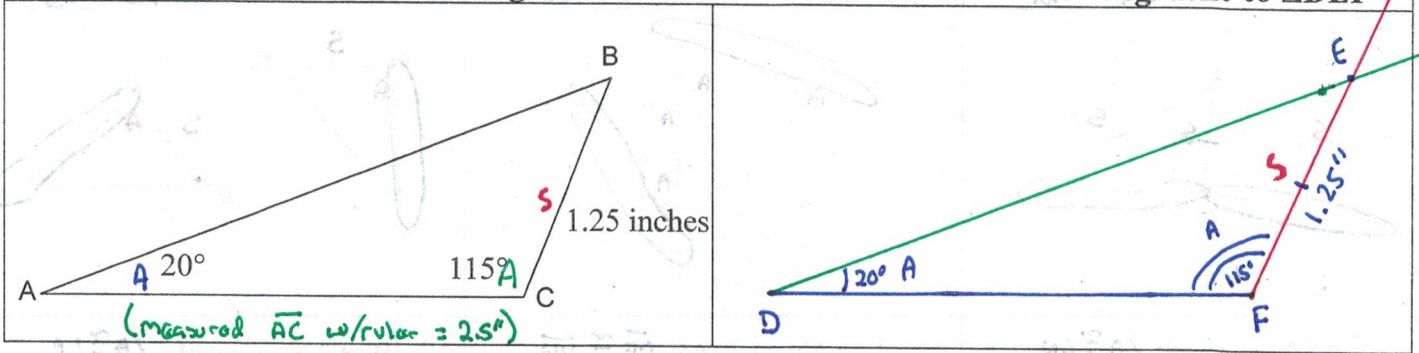


## Triangle Congruence by Angle-Angle-Side (AAS)

**Angle-Angle-Side (AAS) Postulate** → If two Angles and the non-included side of one triangle are congruent to two angles and the non-included side in another triangle, then the triangles must be congruent  $\cong$ .

\*\* Note: To prove the AAS postulate you will need to do a construction using a protractor.

**Proving the AAS Postulate using a Construction - Prove that  $\triangle ABC$  is congruent to  $\triangle DEF$**



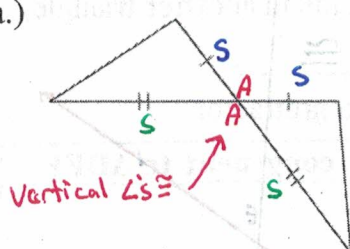
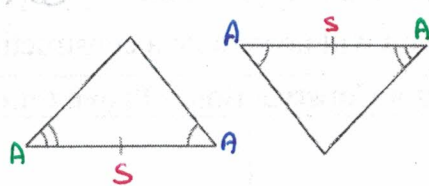
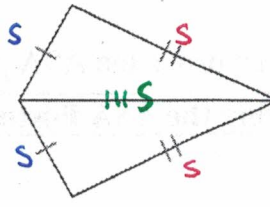
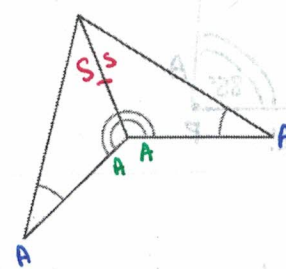
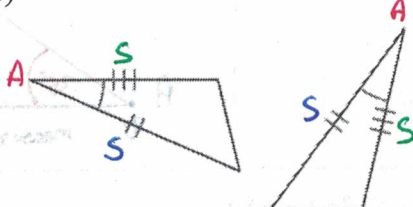
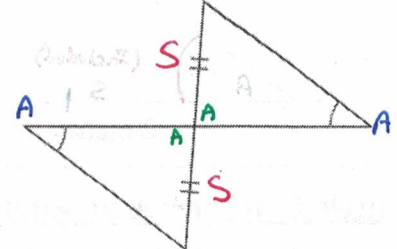
**Example 1:** State if the two triangles are congruent. If they are, state by the appropriate postulate.

|  |   |  |
|--|---|--|
| <p>a.) <math>\cong</math> by AAS</p>                           | <p>b.) NOT <math>\cong</math></p>   | <p>c.) <math>\cong</math> by ASA</p>                               |
| <p>d.) <math>\cong</math> by ASA</p> <p>Reflexive Property</p> | <p>e.) <math>\cong</math> by AAS</p> <p>vertical <math>\angle</math>s</p> | <p>f.) Not <math>\cong</math> no such creature for congruency!</p> |

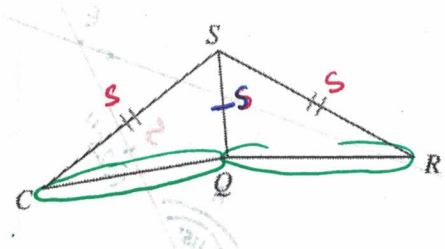
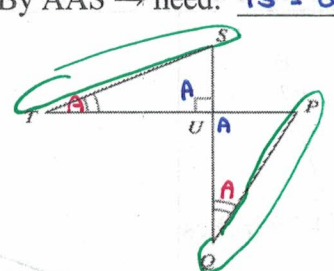
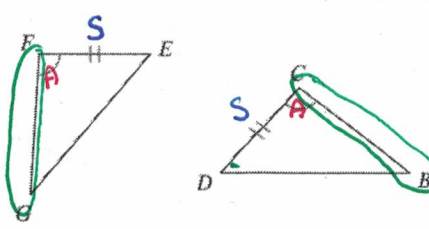
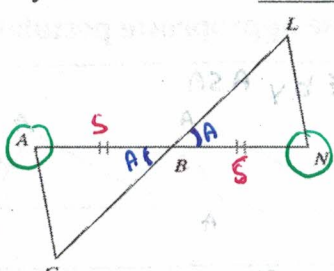
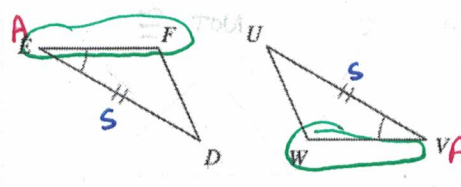
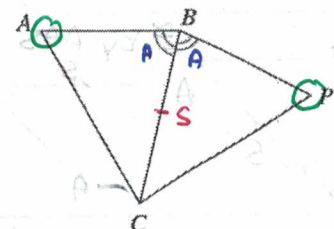
Let's review ALL FOUR Triangle Congruency Postulates:

- 1.) SSS      2.) SAS      3.) ASA      4.) AAS

**Example 2:** The two given triangles are congruent. State the postulate that makes them congruent.

|   |  |   |
|---|--|---|
| <p>a.)</p>  <p>Congruent by <u>SAS</u> Postulate</p>  | <p>b.)</p>  <p>Congruent by <u>ASA</u> Postulate</p> | <p>c.)</p>  <p>Congruent by <u>SSS</u> Postulate</p> |
| <p>d.)</p>  <p>Congruent by <u>AAS</u> Postulate</p> | <p>e.)</p>  <p>Congruent by <u>SAS</u> Postulate</p> | <p>f.)</p>  <p>Congruent by <u>AAS</u> Postulate</p> |

**Example 3:** State what additional information is needed in order to know that the triangles are congruent for the postulate given.

|  |  |   |
|--|--|---|
| <p>a.) By SSS → need: <u><math>\overline{CQ} \cong \overline{RQ}</math></u></p>  | <p>b.) By AAS → need: <u><math>\overline{TS} \cong \overline{QP}</math></u></p>   | <p>c.) By SAS → need: <u><math>\overline{FG} \cong \overline{CB}</math></u></p>  |
| <p>d.) By ASA → need: <u><math>\angle A \cong \angle N</math></u></p>           | <p>e.) By SAS → need: <u><math>\overline{EF} \cong \overline{VW}</math></u></p>  | <p>f.) By AAS → need: <u><math>\angle A \cong \angle P</math></u></p>            |