# H.Geometry – Chapter 4 – Definition Sheet

## Section 4.4

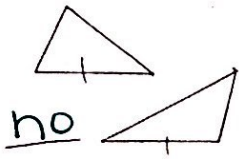
**Congruent Triangles**

- Would have to have 6 pairs of corresponding parts congruent
  3 pairs of sides and 3 pairs of angles

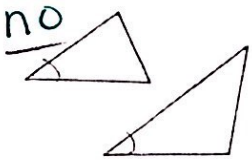
**Determining if triangles are congruent with:**

**1 Pair of congruent corresponding parts**

One side?

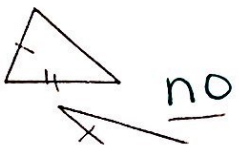



One Angle?

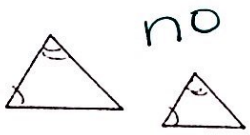



**2 Pairs of congruent corresponding parts**

- Side – Side (SS)




- Angle-Angle (AA)

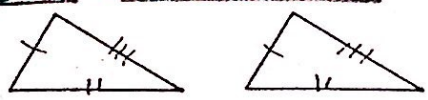



- Side-Angle (SA)

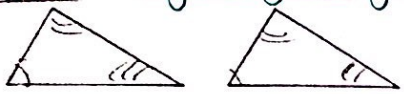

**3 Pairs of congruent corresponding parts**

- SIX POSSIBILITIES: (SOME WORK, SOME DON'T)

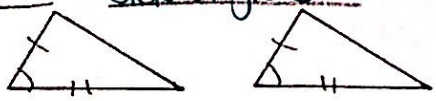
SSS (side-side-side)



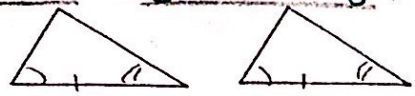
AAA (angle-angle-angle)



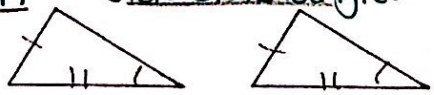
SAS (side-angle-side)



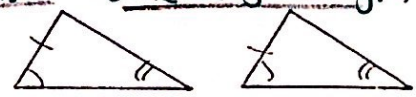
ASA (angle-side-angle)



SSA (side-side-angle)

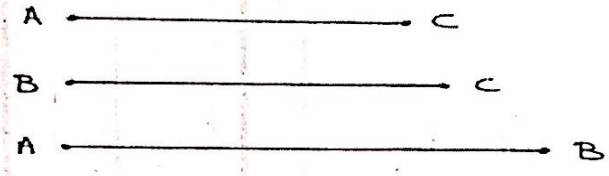


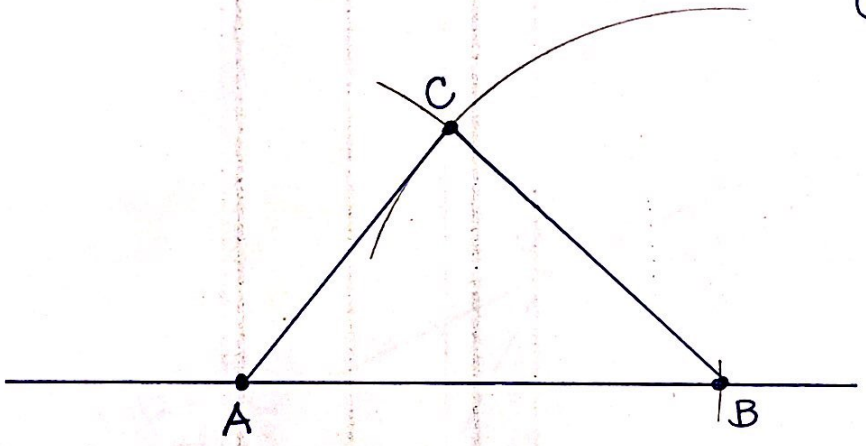
SAA (side-angle-angle)



# H.Geometry – Chapter 4 – Definition Sheet

INVESTIGATION 1 **SSS** CASE (p. 222)

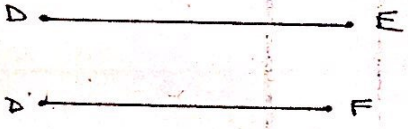


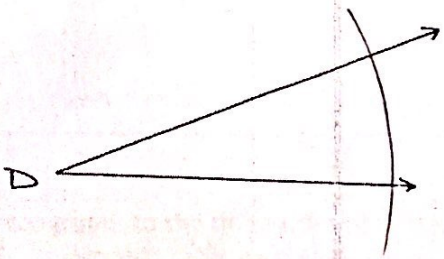




Can only one triangle be constructed?

YES

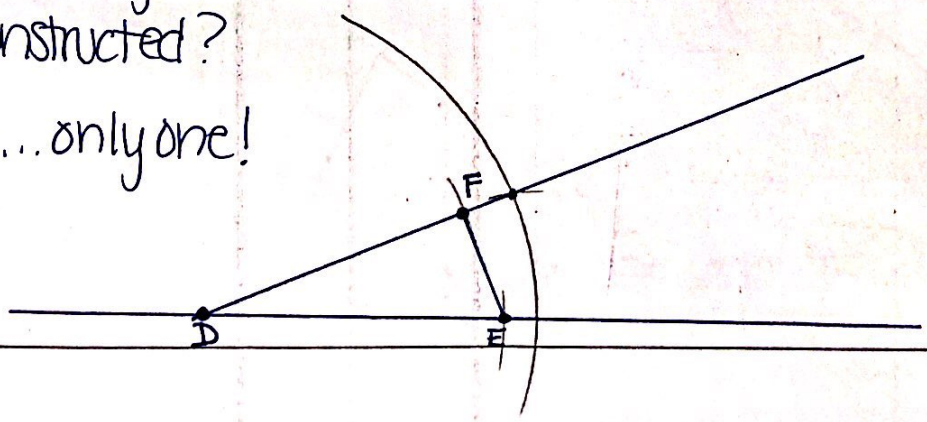
INVESTIGATION 2 **SAS** CASE (p. 223)



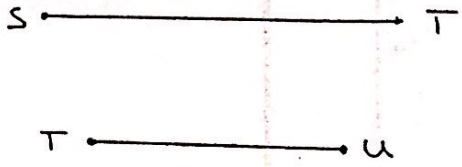

can one triangle be constructed?

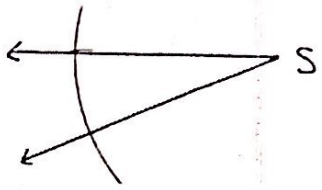
yes...only one!

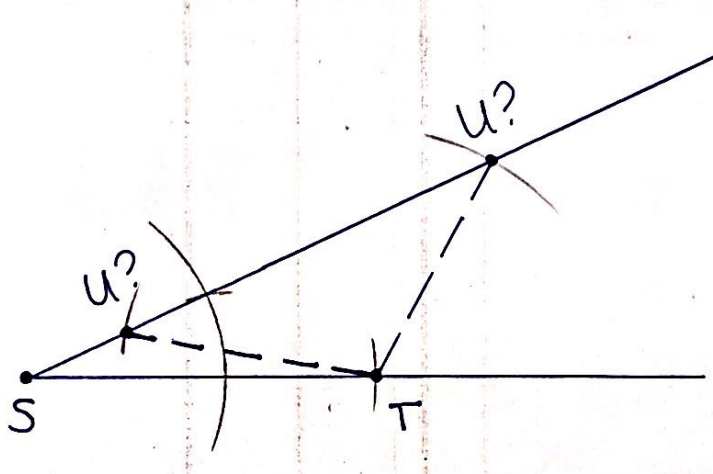


# H.Geometry – Chapter 4 – Definition Sheet

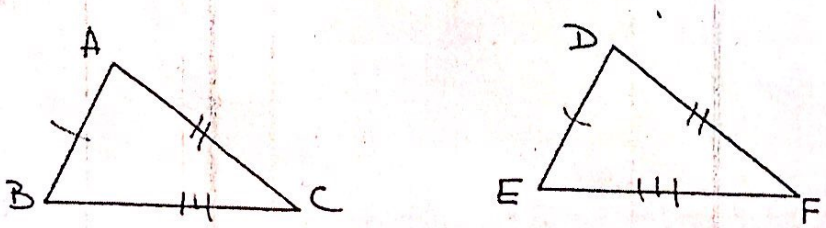
INVESTIGATION 3 **SSA** CASE (P. 223)



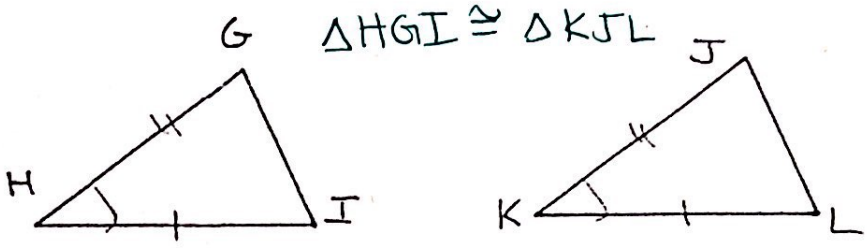
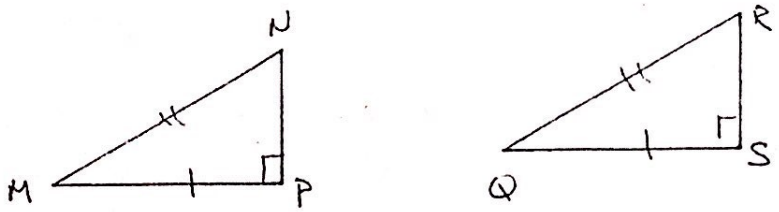




There are two different positions for $\overline{TU}$.

| | |
|---|---|
| **Side-Side-Side**<br>**Congruence Conjecture**<br>(SSS ≅ ) | - If three sides of one triangle are congruent to the three sides of another triangl then the triangles are congruent<br>  <br>$\triangle ABC \cong \triangle DEF$ |

# H.Geometry – Chapter 4 – Definition Sheet

| | |
|---|---|
| **Side-Angle-Side**<br>**Congruence Conjecture**<br>(SAS ≅) | - The two sides and their **included** angle in one triangle are congruent to two sides and their **included** angle in another triangle, then the triangles are congruent.<br>  <br> |
| **Hypotenuse Leg**<br>**Congruence Conjecture**<br>(HL ≅) | If the hypotenuse and one leg of a right triangle are congruent to the hypotenuse and one leg of another right triangle, then the triangles are congruent.<br>  <br><br>ΔMNP ≅ ΔQRS<br>→ only case of SSA → that we learn! Extension of this case in Advanced Algebra! |