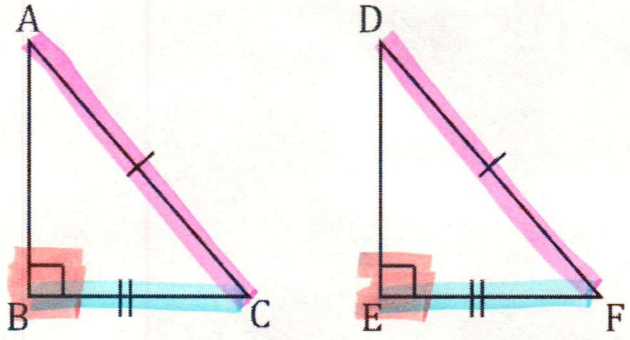
AGS 1 Name: _____ Period: _____ Date: _____

Notes 8.5 Geometry Constructions & Congruence

Basic Proofs



State given relationships in order

$\overline{AC} \cong \overline{DF}$ Hypotenuse

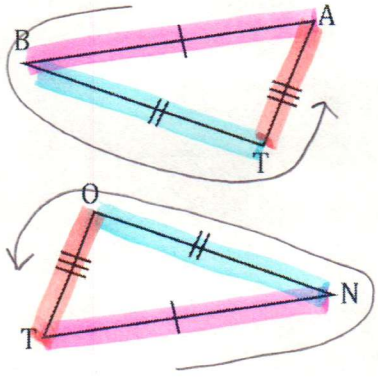
$\overline{BC} \cong \overline{EF}$ Leg

∠ABC and ∠DEF are Right angles

So $\Delta ABC \cong \Delta DEF$ is congurent by HL

Determine if each pair of triangles is congruent. Then state the relationship the proves their congruence.

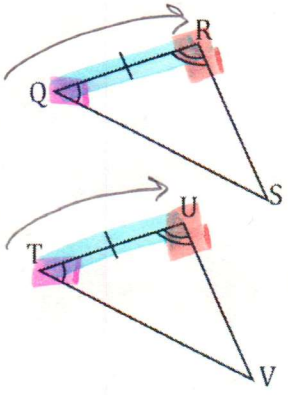
1.



* $\overline{AB} \cong \overline{TN}$ side
* $\overline{TB} \cong \overline{ON}$ side
* $\overline{TA} \cong \overline{OT}$ side

So $\Delta BAT \cong \Delta NTO$ by SSS

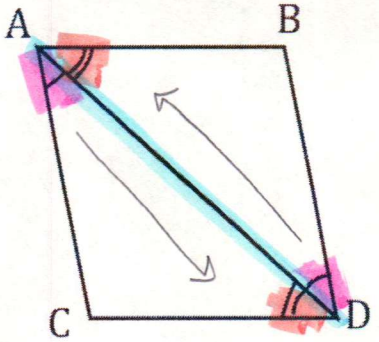
2.



* $\angle Q \cong \angle T$ angle
* $\overline{QR} \cong \overline{TU}$ side
* $\angle R \cong \angle U$ angle

So $\Delta QRS \cong \Delta TUV$ by ASA

3.

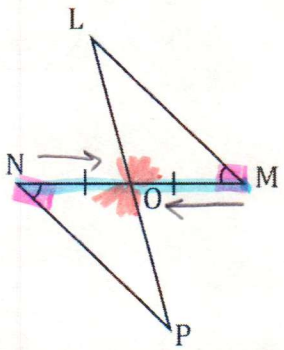


* $\angle CAD \cong \angle BDA$ angle
* $\overline{AD} \cong \overline{DA}$ Shared side
* $\angle CDA \cong \angle BAD$ angle

So $\triangle ACD \cong \triangle DBA$ by ASA

Note: shared sides are congruent

4.



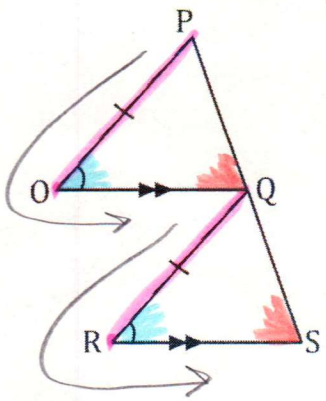
* $\angle N \cong \angle M$ angle
* $\overline{NO} \cong \overline{MO}$ side
* $\angle NOP \cong \angle MOL$ angle

So $\triangle NOP \cong \triangle MOL$ by ASA

Vertical Angles

Note: Angles that are opposite each other formed by intersecting lines are congruent

5.



* $\overline{PO} \cong \overline{QR}$ side
* $\angle O \cong \angle R$ angle
* $\angle PQO \cong \angle QSR$ angle

So $\triangle POQ \cong \triangle QRS$ by AAS

Corresponding Angles

Note: Angles formed by a line that crosses two parallel lines that are in the same relative location are congruent