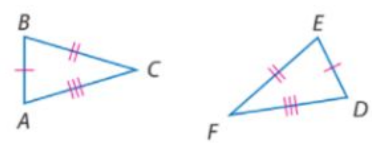
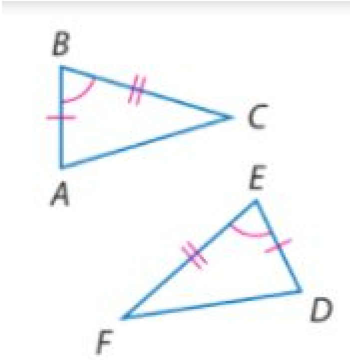
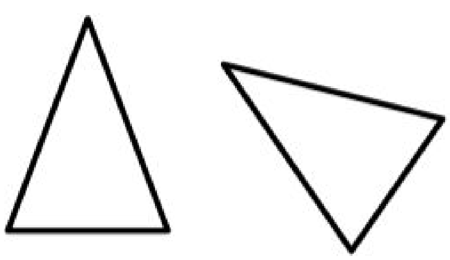
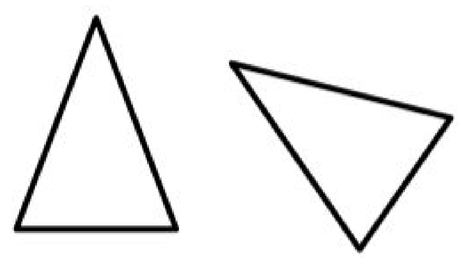
Geometry CP
4.4 Proving Triangles Congruent
(SSS and SAS)

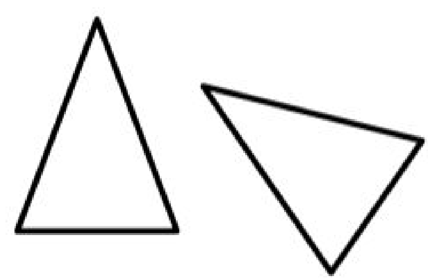
Side-Side-Side Congruence (SSS)	If three sides of one triangle are congruent to three sides of a second triangle, then the triangles are congruent.	
Side-Angle-Side Congruence (SAS)	If two sides and the ___________________ of one triangles are congruent to two sides and the ___________________ of a second triangle, then the triangles are congruent.	

SAS:



NOT SAS:



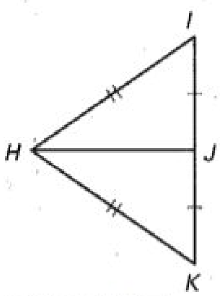


Geometry CP
4.4 Proving Triangles Congruent
(SSS and SAS)

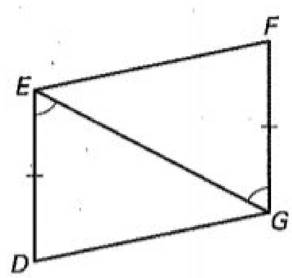
1. State the included angle of the following sides of the given triangle:
   a. $\triangle AEB$
      i. $\overline{AE}$ and $\overline{EB}$ ____________________________
      ii. $\overline{AB}$ and $\overline{EB}$ ____________________________
   b. $\triangle MNO$
      i. $\overline{MN}$ and $\overline{ON}$ ____________________________
      ii. $\overline{MO}$ and $\overline{ON}$ ____________________________

2. Decide whether there is enough information given to prove if the triangles are congruent.

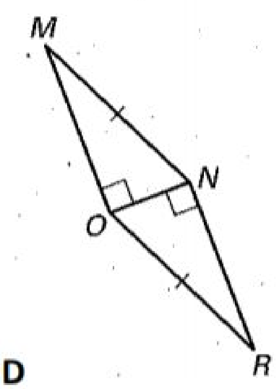
$\triangle IHJ \cong \triangle JHK$



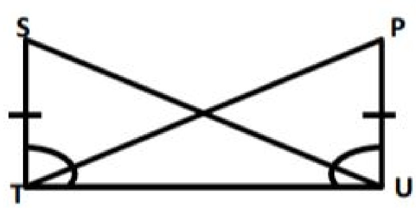
$\triangle DEG, \triangle FGE$



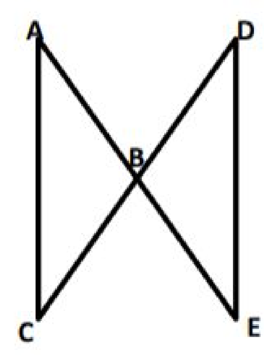
$\triangle MNO, \triangle RON$



$\Delta STU, \Delta PUT$



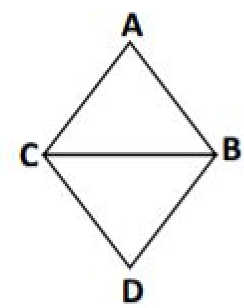
$\Delta ABC, \Delta EBD$



3.

Given: $\overline{AB} \cong \overline{DC}$
$\overline{AC} \cong \overline{DB}$

Prove: $\triangle ABC \cong \triangle DCB$



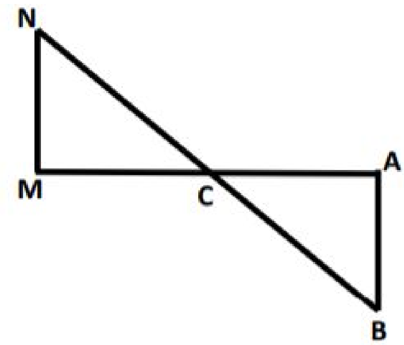
What congruence postulate could we use to prove the triangles congruent?

What sides must we show congruent?

What property states that something (side, angle, etc.) is equal to itself?

Statements	Reasons

4. Given: C is the midpoint of $\overline{NB}$
C is the midpoint of $\overline{MA}$
Prove: $\triangle MNC \cong \triangle ABC$



What congruence postulate could we use to prove the triangles congruent?

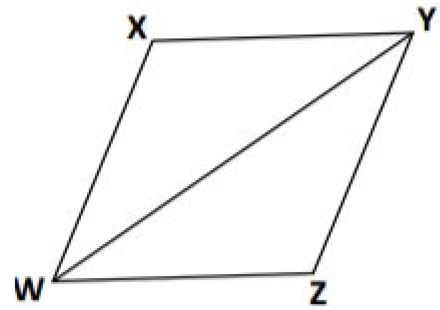
What does the definition of midpoint tell us?

What sides are congruent by the definition of midpoint?

Can we show that all sides are congruent? If not what can we do?

Statements	Reasons

5. Given: $\overline{XY} \cong \overline{WZ}$
$\overline{XY} \parallel \overline{WZ}$
Prove: $\triangle XWY \cong \triangle ZYW$



What congruence postulate could you use to prove the two triangles congruent?

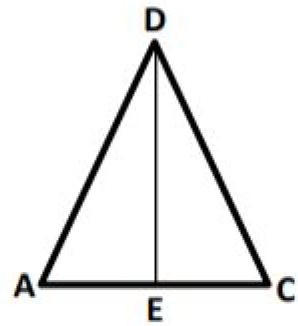
Since $\overline{XY} \parallel \overline{WZ}$ then $\overline{WY}$ can be considered a

____

If you have answered the question above then you can determine which parts are congruent. Which parts are they and what theorems/postulates justify that they are congruent?

Statements	Reasons

6. Given: $\overline{DE}$ is perpendicular to $\overline{AC}$
   $\overline{DE}$ bisects $\overline{AC}$
   Prove: $\triangle DEA \cong \triangle DEC$



Statements	Reasons