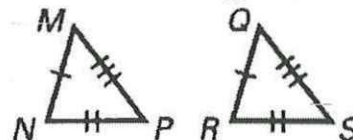


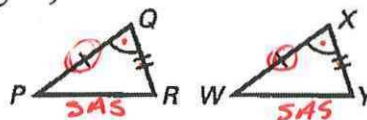
## 5-2/5-3 Proving $\Delta$ 's Congruent: SSS, SAS, ASA & AAS

**Objective:** Show  $\Delta$ 's congruent using SSS, SAS, ASA & AAS

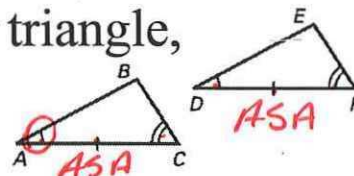
**Side-Side-Side Congruence Postulate (SSS):** If 3 sides of one triangle are congruent to 3 sides of another triangle, then the 2 triangles are congruent.



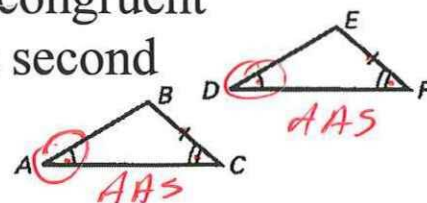
**Side-Angle-Side Congruence Postulate (SAS):** If 2 sides and the included angle of 1 triangle are congruent to 2 sides and the included angle of a second triangle, then the 2 triangles are congruent.



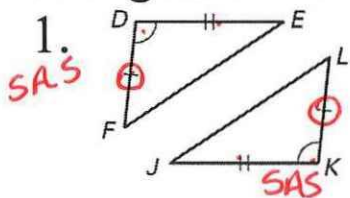
**Angle-Side-Angle Congruence Postulate (ASA):** If 2 angles and the included side of one triangle are congruent to 2 angles and the included side of another triangle, then the triangles are congruent



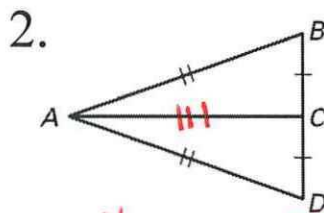
**Angle-Angle-Side Congruence Theorem (AAS):** If 2 angles and the non-included side of 1 triangle are congruent to 2 angles and the non-included side of a second triangle, then the 2 triangles are congruent



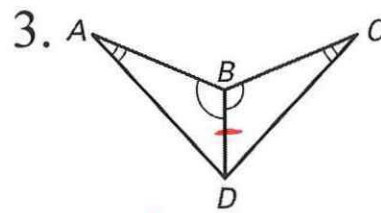
**Examples:** Does the diagram give enough info for the  $\Delta$ 's triangles to be congruent. If so by what postulate/theorem.



Yes by SAS



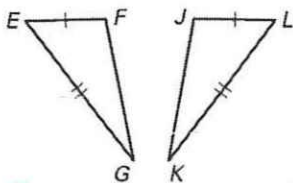
Yes by SSS



Yes by AAS

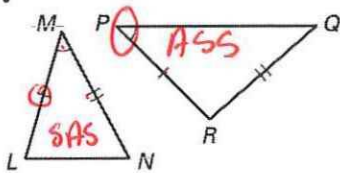
Does the diagram give enough info for the  $\Delta$ 's triangles to be congruent. If so by what postulate/theorem.

4.



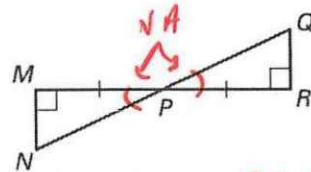
Not enough info

5.



No. not enough info

6.



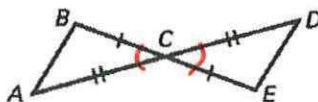
Yes by ASA

### Steps to write a proof:

1. List the given
2. Use info to draw a diagram
3. Give a reason for every statement
4. Use given info, def, postulates, and th. as reasons
5. List statements in order
6. End proof with the statement you are trying to prove

7.

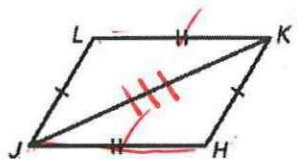
Given:  $\overline{CB} \cong \overline{CE}$ ,  $\overline{AC} \cong \overline{DC}$   
 Prove:  $\triangle BCA \cong \triangle ECD$



Statements	Reasons
1. $\overline{CB} \cong \overline{CE}$	1. Given
2. $\overline{AC} \cong \overline{DC}$	2. Given
3. $\angle BCA \cong \angle ECD$	3. VA Theorem
4. $\triangle BCA \cong \triangle ECD$	4. SAS Postulate

8.

Write a two-column proof that shows  $\triangle HJK \cong \triangle LKJ$ .



Solution

Statements	Reasons
Side 1. $\overline{HJ} \cong \overline{LK}$	1. Given
Side 2. $\overline{HK} \cong \overline{LJ}$	2. Given
Side 3. $\overline{JK} \cong \overline{KJ}$	3. Reflexive Property of Congruence
4. $\triangle HJK \cong \triangle LKJ$	4. SSS Congruence Postulate

shared sides

p245 #9-26,

p263 #10-26