4-3

Triangle Congruence by ASA and AAS

© **Content Standard**
G.SRT.5 Use congruence . . . criteria for triangles to solve problems and prove relationships in geometric figures.

Objective   To prove two triangles congruent using the ASA Postulate and the AAS Theorem

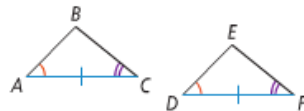take note

Postulate 4-3   Angle-Side-Angle (ASA) Postulate

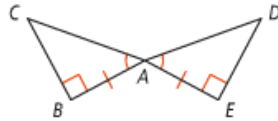| **Postulate**	**If . . .**	**Then . . .**
If two angles and the included side of one triangle are congruent to two angles and the included side of another triangle, then the two triangles are congruent.	$\angle A \cong \angle D$, $\overline{AC} \cong \overline{DF}$, $\angle C \cong \angle F$	$\triangle ABC \cong \triangle DEF$

1. Which two triangles are congruent by ASA? Explain.

2. Given: $\angle CAB \cong \angle DAE$, $\overline{BA} \cong \overline{EA}$,
$\angle B$ and $\angle E$ are right angles

Prove: $\triangle ABC \cong \triangle AED$

take note

Theorem 4-2   Angle-Angle-Side (AAS) Theorem

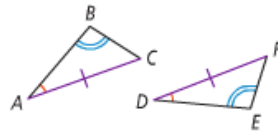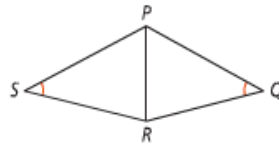| Theorem	If . . .	Then . . .
If two angles and a nonincluded side of one triangle are congruent to two angles and the corresponding nonincluded side of another triangle, then the triangles are congruent.	$\angle A \cong \angle D$, $\angle B \cong \angle E$, $\overline{AC} \cong \overline{DF}$	$\triangle ABC \cong \triangle DEF$

3. a. Given: $\angle S \cong \angle Q$, $\overline{RP}$ bisects $\angle SRQ$
   Prove: $\triangle SRP \cong \triangle QRP$

4. Are $\triangle PAR$ and $\triangle SIR$ congruent? Explain.