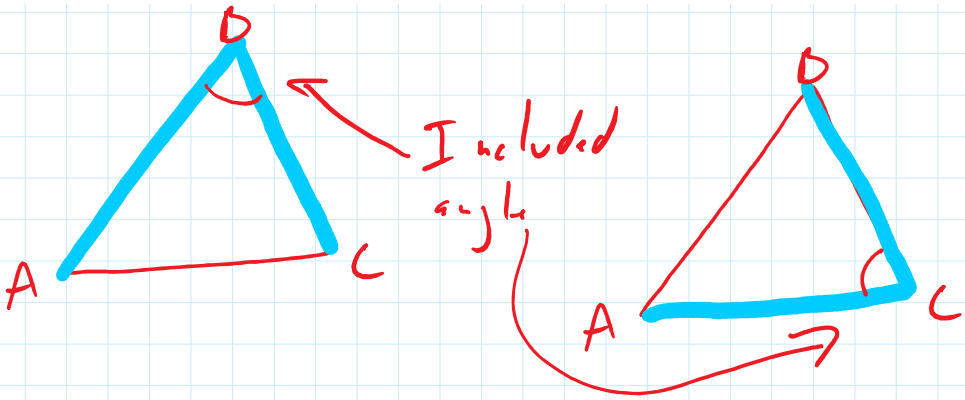
5.3 SAS Congruence

Monday, January 2, 2017 12:45 PM

What You Will Learn

- Use the Side-Angle-Side (SAS) Congruence Theorem.

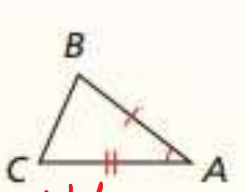


Theorem 5.5 Side-Angle-Side (SAS) Congruence Theorem

If two sides and the included angle of one triangle are congruent to two sides and the included angle of a second triangle, then the two triangles are congruent.

If $\overline{AB} \cong \overline{DE}$, $\angle A \cong \angle D$, and $\overline{AC} \cong \overline{DF}$, then $\triangle ABC \cong \triangle DEF$.

Proof p. 246



Old Leg

$\overline{AB} \cong \overline{DE}$

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

$\overline{CB} \cong \overline{EF}$

$\angle A \cong \angle D$

$\angle C \cong \angle F$

$\angle B \cong \angle E$

SAS

$\overline{BA} \cong \overline{DE}$

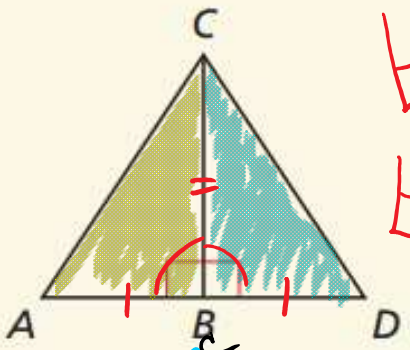
$\overline{CA} \cong \overline{DF}$

$\angle A \cong \angle D$

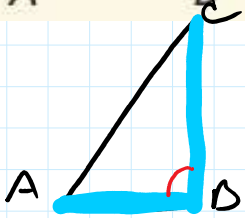
Write a proof.

Given B is the midpoint of $\overline{AD}$. $\angle ABC$ and $\angle DBC$ are right angles.

Prove $\triangle ABC \cong \triangle DBC$



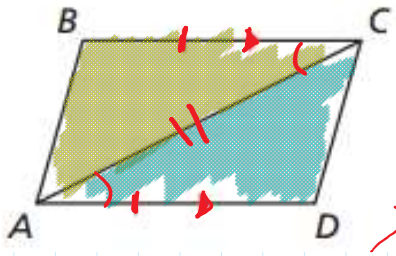
B is the midpoint of AD	given
$\overline{AB} \cong \overline{BD}$	Def. of midpoint
$\angle ABC$ and $\angle DBC$ are right $\angle$s	given
$\angle ABC \cong \angle DBC$	Def. of right $\angle$s
$\overline{BC} \cong \overline{CB}$	Reflexive PoC
$\triangle ABC \cong \triangle DBC$	SAS

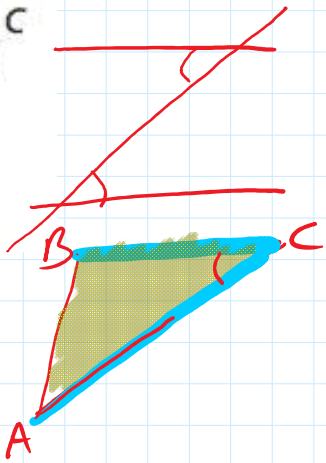


Write a proof.

Given $\overline{BC} \cong \overline{DA}, \overline{BC} \parallel \overline{AD}$

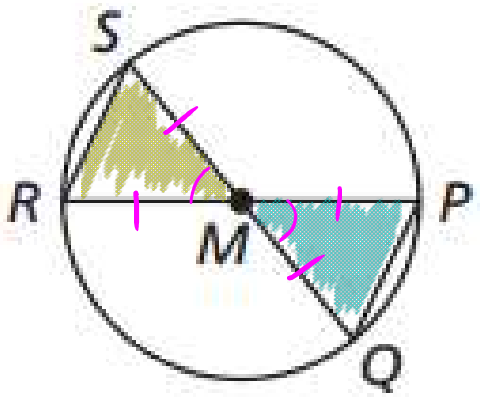
Prove $\triangle ABC \cong \triangle CDA$





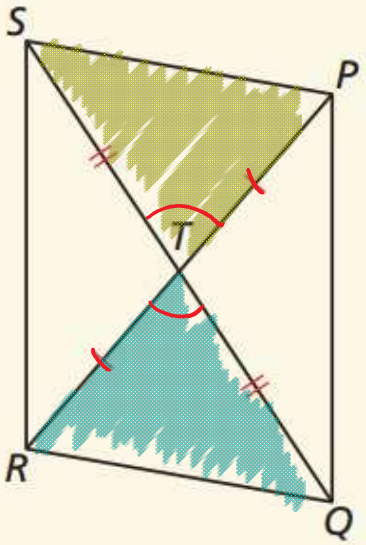
$\overline{BC} \cong \overline{DA}$	given
$\overline{BC} \parallel \overline{AD}$	given
$\angle BCA \cong \angle CAD$	Alt. Int. $\angle$s
$\overline{AC} \cong \overline{AC}$	Reflexive PoC
$\triangle ABC \cong \triangle CDA$	SAS

In the diagram, $\overline{QS}$ and $\overline{RP}$ pass through the center M of the circle. What can you conclude about $\triangle MRS$ and $\triangle MPQ$?



$\triangle MRS \cong \triangle MPQ$ by SAS

What can you conclude about $\triangle PTS$ and $\triangle RTQ$?



$\triangle PTS \cong \triangle RTQ$ by SAS

Practice *sec 5.3* **pg. 249:**
1-14A, 15-21EO