

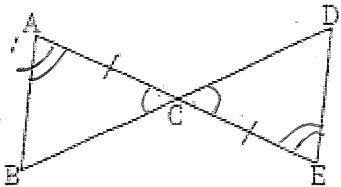
# Geometry Ch. 4 Triangle Congruence Proofs Practice WS

Key

**Proofs Reasons Bank** (This will NOT be provided for you on the test) : Given, Vertical Angles are Congruent, Reflexive Property, Def of Angle Bisector, Def of Midpoint, Alt. Interior Angles  $\cong$ , Triangles congruent (SSS, SAS, HL, ASA, AAS), CPCTC

1. (4 steps)

Given  $\overline{AB} \parallel \overline{ED}$ ,  $AC \cong EC$

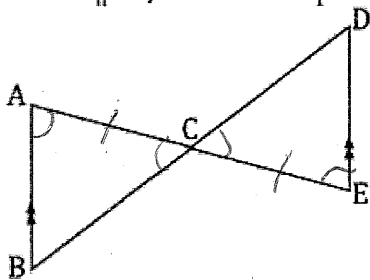


Prove:  $\triangle ABC \cong \triangle EDC$

Statement	Reason
1) $AB \parallel ED, AC = EC$	1) Given
2) $\angle ACB = \angle DCE$	2) Vertical Angles $\cong$
3) $\angle A = \angle E$	3) Alt. Interior Angles $\cong$
4) $\triangle ABC = \triangle EDC$	4) ASA

2. (6 steps)

Given:  $\overline{AB} \parallel \overline{DE}$ , C is the midpoint of  $\overline{AE}$



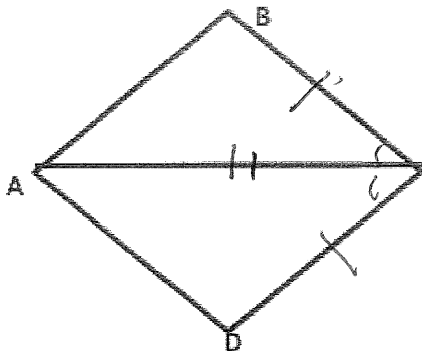
Prove:  $\overline{BC} \cong \overline{DC}$

Statement	Reason
1) $AB \parallel DE, C$ is midpt.	1) Given
2) $\angle ACB = \angle DEC$	2) Vertical Angles $\cong$
3) $\angle A = \angle E$	3) Alt. Interior Angles $\cong$
4) $AC = CE$	4) Def of Midpt.
5) $\triangle ABC = \triangle DEC$	5) ASA
6) $BC = DC$	6) CPCTC

3. (4 steps)

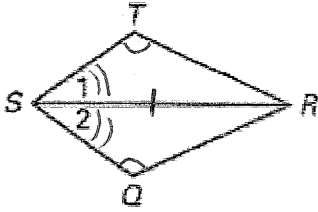
Given:  $\overline{BC} \cong \overline{CD}$  and  $\overline{AC}$  bisects  $\angle BCD$

Prove:  $\triangle ABC \cong \triangle ADC$



Statement	Reason
1) $BC = CD, AC$ bisects $\angle BCD$	1) Given
2) $AC = AC$	2) Reflexive property
3) $\angle BCA = \angle DCA$	3) Def. of Angle Bisector
4) $\triangle ABC = \triangle ADC$	4) SAS

4. (4 steps)

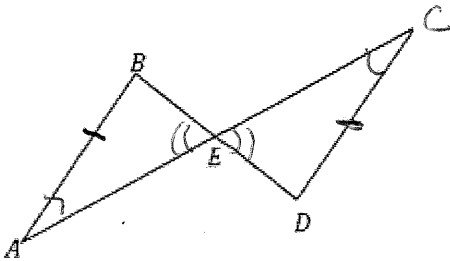


Given:  $\overrightarrow{SR}$  bisects  $\angle TSQ$ ,  
 $\angle T \cong \angle Q$

Prove:  $\triangle RTS \cong \triangle RQS$

Statement	Reason
1) $SR$ bisects $\angle TSQ$ $\angle T = \angle Q$	1) Given
2) $\angle TSR = \angle QSR$	2) Def. of Angle bisector
3) $SR = SR$	3) Reflexive property
4) $\triangle RTS = \triangle RQS$	4) AAS

5. (4 steps)



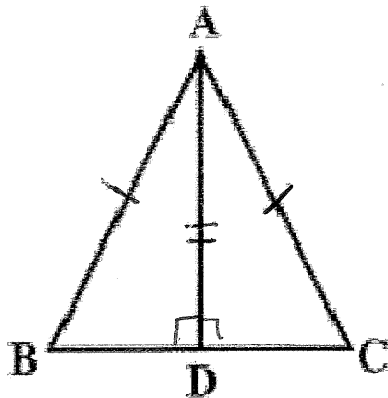
Given:  $\overline{AB} \cong \overline{CD}$ ,  $\angle A \cong \angle C$   
 Prove:  $\overline{BE} \cong \overline{DE}$

Statement	Reason
1) $AB = CD$ , $\angle A = \angle C$	1) Given
2) $\angle BEA = \angle DEC$	2) Vertical Angles $\cong$
3) $\triangle ABE = \triangle CDE$	3) AAS
4) $BE = DE$	4) CPCTC

6. (5 steps)

Given:  $\overline{AB} \cong \overline{AC}$  and  $\overline{AD}$  bisects  $\overline{BC}$

Prove:  $\angle BAD \cong \angle CAD$



Statement	Reason
1) $AB = AC$ , $AD$ bisects $BC$	1) Given
2) $\angle ADB = \angle ADC$	2) Def. of Angle Bisector
3) $AD = AD$	3) Reflexive property
4) $\triangle BAD = \triangle CAD$	4) HL
5) $\angle BAD = \angle CAD$	5) CPCTC