

Geometry CC - Unit 5
 Lesson 5: Triangle Congruence Proofs (Practice)
 M1 L22-27

List the 5 ways to prove triangles congruent

SSS
 SAS
 ASA
 AAS
 HL

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1) Given: \overline{AB} and \overline{CD} bisect each other at E .
 Prove: $\triangle AEC \cong \triangle BED$

Statement	Reason
1) \overline{AB} and \overline{CD} bisect each other at E .	1) Given
2) $\overline{AE} \cong \overline{EB}$ $\overline{CE} \cong \overline{ED}$	2) A seg. bisector divides a seg. into 2 congruent seg.
3) $\angle 1 \cong \angle 2$	3) Vertical angles are congruent
4) $\triangle AEC \cong \triangle BED$	4) SAS \cong SAS

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2) Given: $\angle A \cong \angle E$,
 $\angle BCA \cong \angle DCE$,
 C is the midpoint of \overline{AE} .
 Prove: $\triangle ABC \cong \triangle EDC$

Statement	Reason
1) $\angle A \cong \angle E$	1) Given
2) $\angle BCA \cong \angle DCE$	2) Given
3) C is the midpoint of \overline{AE}	3) Given
4) $\overline{AC} \cong \overline{EC}$	4) A midpt. divides a seg. into 2 congruent seg.
5) $\triangle ABC \cong \triangle EDC$	5) ASA \cong ASA

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3) Given: $\overline{AC} \cong \overline{DE}$, B is the midpoint of \overline{CE} .
 $\angle 1 \cong \angle 2$
 Prove: $\triangle ABC \cong \triangle DBE$

Statement	Reason
1) $\overline{AC} \cong \overline{DE}$	1) Given
2) B is the midpoint of \overline{CE}	2) Given
3) $\angle 1 \cong \angle 2$	3) Given
4) $\overline{CB} \cong \overline{EB}$	4) A midpt. divides a seg. into 2 congruent seg.
5) $\angle 3 \cong \angle 4$	5) Linear pairs are 8) Supp. of congruent \angle 's are congruent
9) $\triangle ABC \cong \triangle DBE$	9) SAS \cong SAS

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4) Given: $\triangle BAD$ is isosceles with vertex A ,
 \overline{AC} is a median.
 Prove: $\triangle ACB \cong \triangle ACD$

Statement	Reason
1) $\triangle BAD$ is isosceles with vertex A	1) Given
2) \overline{AC} is a median.	2) Given
3) C is the midpt. of \overline{BD}	3) Def. of a median
4) $\overline{BC} \cong \overline{DC}$	4) Def. of a midpt.
5) $\overline{AC} \cong \overline{AC}$	5) Reflexive Property
6) $\overline{BA} \cong \overline{DA}$	6) An isosc. triangle has 2 congruent sides
7) $\triangle ACB \cong \triangle ACD$	7) SSS \cong SSS

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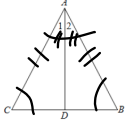
5) Given: $\angle CAD \cong \angle BAD$,
 $\overline{CA} \cong \overline{AB}$
 Prove: $\triangle ADC \cong \triangle ADB$

Statement	Reason
1) $\angle CAD \cong \angle BAD$	1) Given
2) $\overline{CA} \cong \overline{AB}$	2) Given
3) $\overline{AD} \cong \overline{AD}$	3) Reflexive Prop.
4) $\triangle ADC \cong \triangle ADB$	4) SAS \cong SAS

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6) Given: $\triangle CAB$ is isosceles with vertex A ,
 $\angle C \cong \angle B$,
 $\angle 1 \cong \angle 2$

Prove: $\triangle CAD \cong \triangle BAD$



Statement	Reason
1) $\triangle CAB$ is isosceles with vertex A	1) Given
2) $\angle C \cong \angle B$	2) Given
3) $\angle 1 \cong \angle 2$	3) Given
4) $\overline{CA} \cong \overline{BA}$	4) An isosc. triangle has 2 congruent sides
5) $\triangle CAD \cong \triangle BAD$	5) $ASA \cong ASA$

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