

Name : _____

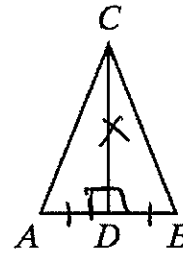
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CC Geometry

CPCTC and Triangle Proofs

1. Given: $\overline{CD} \perp \overline{AB}$, and D is the midpoint of \overline{AB}

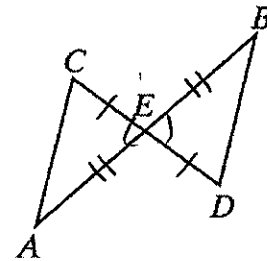
Prove: $\angle ACD \cong \angle BCD$



Statements	Reasons
1) $\overline{CD} \perp \overline{AB}$ D is midpoint of \overline{AB}	1) Given
2) $\angle CDA + \angle CDB$ are right \angle 's	2) \perp lines form right \angle 's
3) $\angle CDA \cong \angle CDB$	3) All right \angle 's are \cong
4) $\overline{AD} \cong \overline{BD}$	4) Midpoint creates 2 \cong segments
5) $\overline{CD} \cong \overline{CD}$	5) Reflexive Property
6) $\triangle ACD \cong \triangle BCD$	6) SAS
7) $\angle ACD \cong \angle BCD$	7) CPCTC

2. Given: \overline{AEB} and \overline{CED} bisect each other.

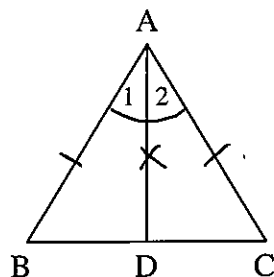
Prove: $\angle C \cong \angle D$



Statements	Reasons
1) \overline{AEB} and \overline{CED} bisect each other	1) Given
2) $\overline{CE} \cong \overline{DE}$, $\overline{BE} \cong \overline{AE}$	2) Segment bisector creates 2 \cong segments
3) $\angle CEA \cong \angle DEB$	3) Vertical \angle 's are \cong
4) $\triangle CEA \cong \triangle DEB$	4) SAS
5) $\angle C \cong \angle D$	5) CPCTC

3. Given: \overline{AD} bisects $\angle BAC$
 $\overline{AB} \cong \overline{AC}$

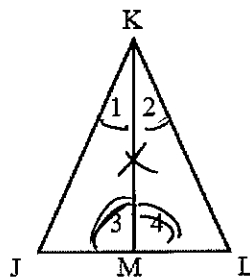
Prove: D is the midpoint of \overline{BC}



Statements	Reasons
1) \overline{AD} bisects $\angle BAC$ $\overline{AB} \cong \overline{AC}$	1) Given
2) $\angle 1 \cong \angle 2$	2) \angle bisector creates 2 \cong \angle 's
3) $\overline{AD} \cong \overline{AD}$	3) Reflexive property
4) $\triangle ABD \cong \triangle ACD$	4) SAS
5) $\overline{BD} \cong \overline{CD}$	5) CPCTC
6) D is midpoint of \overline{BC}	6) Midpoint creates 2 \cong segments

4. Given: $\angle 1 \cong \angle 2, \angle 3 \cong \angle 4$

Prove: $\triangle JKL$ is isosceles

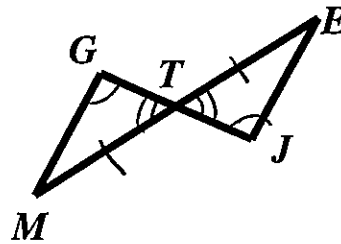


Statements	Reasons
1) $\angle 1 \cong \angle 2, \angle 3 \cong \angle 4$	1) Given
2) $\overline{KM} \cong \overline{KM}$	2) Reflexive property
3) $\triangle JKM \cong \triangle LKM$	3) ASA
4) $\overline{JK} \cong \overline{LK}$	4) CPCTC
5) $\triangle JKL$ is isosceles	5) An isosceles \triangle has 2 \cong sides

5. Given: T is the midpoint of \overline{ME}

$$\angle G \cong \angle J$$

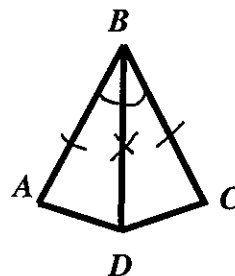
Prove: $\overline{GM} \parallel \overline{JE}$



Statements	Reasons
1) T is midpoint of \overline{ME} $\overline{MG} \cong \overline{TJ}$	1) Given
2) $\overline{MT} \cong \overline{ET}$	2) Midpoint creates 2 \cong segments
3) $\angle MTG \cong \angle ETJ$	3) Vertical \angle 's are \cong
4) $\triangle MTG \cong \triangle ETJ$	4) AAS
5) $\angle M \cong \angle E$	5) CPCTC
6) $\overline{GM} \parallel \overline{JE}$	6) When alternate interior \angle 's are \cong , lines are \parallel

6. Given: $\overline{AB} \cong \overline{CB}$, \overline{BD} bisects $\angle ABC$

Prove: \overline{BD} bisects $\angle ADC$



Statements	Reasons
1) $\overline{AB} \cong \overline{CB}$, \overline{BD} bisects $\angle ABC$	1) Given
2) $\angle ABD \cong \angle CBD$	2) \angle bisector creates 2 \cong angles
3) $\overline{BD} \cong \overline{BD}$	3) Reflexive property
4) $\triangle ABD \cong \triangle CBD$	4) SAS
5) $\angle ADB \cong \angle CDB$	5) CPCTC
6) \overline{BD} bisects $\angle ADC$	6) Angle bisector creates 2 \cong \angle 's