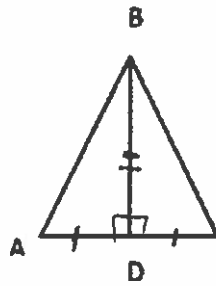


Chapter 4: Proof Review

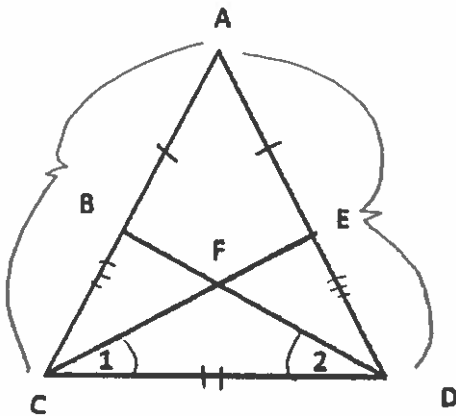
1. Given: $\overline{BD} \perp \overline{AC}$
 D is the midpoint of \overline{AC}
 Prove: $\triangle ABC$ is isosceles



Statements	Reasons
① $\overline{BD} \perp \overline{AC}$ D is the M.P. of \overline{AC}	① Given
② $\angle ADB$ and $\angle CDB$ are right \angle 's	② IF 2 seg. are \perp , then they form right \angle .
③ $\angle ADB \cong \angle CDB$	③ IF \angle 's are right \angle 's, then they are \cong .
④ $\overline{AD} \cong \overline{DC}$	④ IF a pt is the M.P., then it divides the seg. into 2 \cong segments
⑤ $\overline{BD} \cong \overline{BD}$	⑤ Reflexive Property
⑥ $\triangle ADB \cong \triangle CDB$	⑥ SAS (4,3,5)
⑦ $\overline{AB} \cong \overline{BC}$	⑦ CPCTC
⑧ $\triangle ABC$ is isosceles	⑧ IF at least 2 Sides of a \triangle are \cong , then the \triangle is an isosceles \triangle .

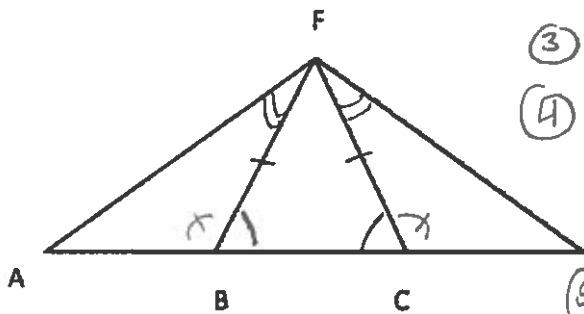
2. Given: $\overline{BD} \cong \overline{EC}$
 $\overline{AB} \cong \overline{AE}$
 $\angle 1 \cong \angle 2$

Prove: $\overline{AC} \cong \overline{AD}$



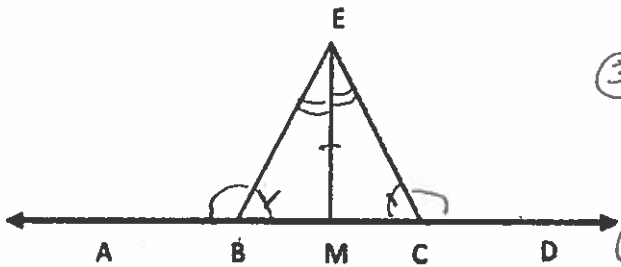
Statements	Reasons
① $\overline{BD} \cong \overline{EC}$, $\overline{AB} \cong \overline{AE}$ $\angle 1 \cong \angle 2$	① Given
② $\overline{CD} \cong \overline{CD}$	② Reflexive Property
③ $\triangle BDC \cong \triangle ECD$	③ SAS (1,1,2)
④ $\overline{CB} \cong \overline{DE}$	④ CPCTC
⑤ $\overline{AC} \cong \overline{AD}$	⑤ IF 2 \cong segments are added to 2 \cong segments, then the sums are \cong .

3. Given: $\angle FBC \cong \angle FCB$
 \overline{BF} and \overline{CF} trisect $\angle AFD$
 Prove: $\angle A \cong \angle D$



Statements	Reasons
① $\angle FBC \cong \angle FCB$ \overline{BF} and \overline{CF} trisect $\angle AFD$	① Given
② $\angle AFB \cong \angle DFC$	② IF an angle is trisected, then it is split into 3 \cong angles.
③ $\overline{FB} \cong \overline{FC}$	③ IF 2 \angle 's of a Δ are \cong , then the sides opposite are \cong .
④ $\angle ABF$ and $\angle FBC$ are a linear pair $\angle DCF$ and $\angle FCB$ are a linear pair	④ Assumed by diagram
⑤ $\angle ABF$ and $\angle FBC$ are supp. $\angle DCF$ and $\angle FCB$ are supp.	⑤ IF 2 \angle 's form a linear pair, then they are supp.
⑥ $\angle ABF \cong \angle DCF$	⑥ IF 2 \angle 's are supp to \cong \angle 's then they are \cong
⑦ $\Delta ABF \cong \Delta DCF$	⑦ ASA (2, 3, 6)
⑧ $\angle A \cong \angle D$	⑧ CPCTC

4. Given: $\angle ABE \cong \angle DCE$
 \overline{EM} bisects $\angle BEC$
 Prove: $\overline{BM} \cong \overline{CM}$



Statements	Reasons
① $\angle ABE \cong \angle DCE$ \overline{EM} bisects $\angle BEC$	① Given
② $\angle BEM \cong \angle CEM$	② IF a seg. bisects an \angle , then it divides the \angle into 2 \cong \angle 's
③ $\angle ABE$ and $\angle EBM$ form a linear pair $\angle DCE$ and $\angle ECM$ form a linear pair	③ Assumed by diagram
④ $\angle ABE$ and $\angle EBM$ are supp. $\angle DCE$ and $\angle ECM$ are supp.	④ IF 2 \angle 's form a linear pair, then they are supp.
⑤ $\angle EBM \cong \angle ECM$	⑤ IF 2 \angle 's are supp to \cong \angle 's, then they are \cong .
⑥ $\overline{EM} \cong \overline{EM}$	⑥ Reflexive Property
⑦ $\Delta BEM \cong \Delta CEM$	⑦ AAS (5, 2, 6)
⑧ $\overline{BM} \cong \overline{CM}$	⑧ CPCTC