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But $\angle 3 + \angle 4 = 180^\circ$ [linear pair axiom]

$$2\angle 3 = 180^\circ$$

$$\angle 3 = \frac{180}{2}$$

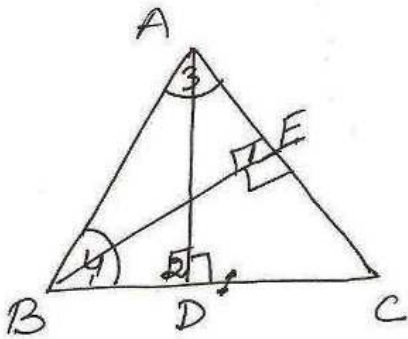
$$= 90$$

$$\Rightarrow AD \perp BC$$

AD is per bis. of BC
 $\left[\begin{array}{l} BO = CO \\ \angle 3 = 90^\circ \end{array} \right]$

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To Prove $AE = BD$

Proof In $\triangle AEB$ and $\triangle BDA$

$$\angle 1 = \angle 2 = 90^\circ$$

$$\angle 3 = \angle 4$$

[In $\triangle ABC$,
 $AC = BC$
 $\Rightarrow \angle 4 = \angle 3$ (Isos \triangle prop.)]

$$AB = BA \text{ (common)}$$

$$\therefore \triangle AEB \cong \triangle BDA$$

by AAS cor

$$\therefore AE = BD \text{ (C.P.C.T.)}$$