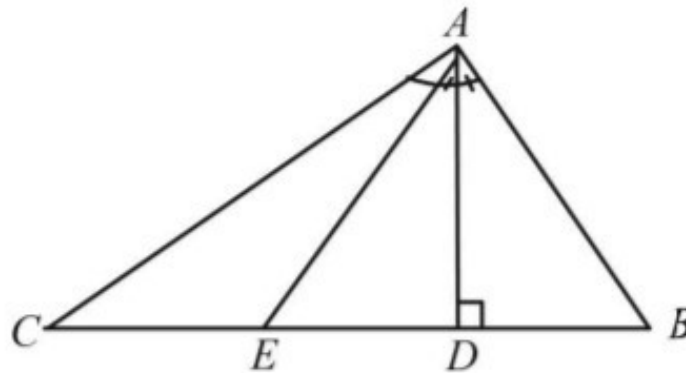


3.  $ABC$  is a triangle with  $\angle B$  greater than  $\angle C$ .  $D$  and  $E$  are points on  $BC$  such that  $AD$  is perpendicular to  $BC$  and  $AE$  is the bisector of angle  $A$ . Complete the relation (1980)

$$\angle DAE = \frac{1}{2}[(\quad) - \angle C]$$

Solution: -

3. We have  $\angle BAE = \angle CAE$  (given)  
and  $\angle ADB = \angle ADC = 90^\circ$  (given)



Now

$$\begin{aligned} \angle DAE &= \angle BAE - \angle BAD \\ &= \angle CAE - (90^\circ - \angle B) \\ &= (\angle CAD - \angle DAE) - 90^\circ + \angle B \\ &= (90^\circ - \angle C) - \angle DAE - 90^\circ + \angle B \end{aligned}$$

$$\Rightarrow 2 \angle DAE = \angle B - \angle C \Rightarrow \angle DAE = \frac{1}{2}(\angle B - \angle C)$$