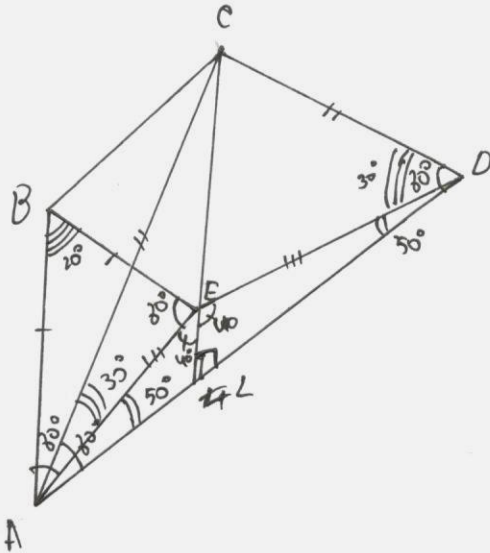


4



$$\angle BAE = \angle BEA = 30^\circ$$

$$\angle CAD = \angle CDA = 30^\circ$$

$$\angle EAD = \angle EDA = 50^\circ$$

$$1) \angle CAE = \angle CAD - \angle EAD = 30^\circ - 50^\circ = 30^\circ$$

2) проведем CE до пересечения с AD в точке L

3) рассмотрим \triangle -ки ACE и DCB

они равны по 3-м признакам
($AC = CD$; $AE = ED$; $\angle C = \text{общий}$) \Rightarrow

$$\angle ACE = \angle DCB \Rightarrow \angle C - \text{биссектриса } \triangle ACD \Rightarrow$$

$$\angle C - \text{высота } \triangle ACD \Rightarrow \angle CLA = 90^\circ$$

$$4) \angle AEL = 90^\circ - \angle LAE = 90^\circ - 50^\circ = 40^\circ$$

$$5) \angle BEL = \angle BEA + \angle AEL = 30^\circ + 40^\circ = 70^\circ$$

$$6) \angle BEC = 180^\circ - \angle BEA = 180^\circ - 110^\circ = 70^\circ$$

$$7) \angle EBA = 180^\circ - 2\angle BAE = 180^\circ - 180^\circ = 0^\circ$$

$$8) \angle CDE = \angle CDA - \angle EDA = 30^\circ - 50^\circ = 30^\circ$$

$$\angle DEC = 180^\circ - \angle CED = 180^\circ - 170^\circ = 10^\circ$$

$$\angle ECD = 180^\circ - (\angle CDE + \angle DEC) = 180^\circ - (30^\circ + 10^\circ) = 140^\circ$$

9) по т. Синусов

$$\frac{AE}{\sin 20^\circ} = \frac{BE}{\sin 60^\circ} \text{ и}$$

$$\frac{CE}{\sin 30^\circ} = \frac{ED}{\sin 10^\circ}$$

$$AE = ED$$

$$\sin 30^\circ = \frac{1}{2}$$

$$2CE = \frac{ED}{\sin 10^\circ}$$

$$AE = \frac{BE \cdot \sin 60^\circ}{\sin 30^\circ}$$

$$2CE = \frac{BE \cdot \sin 60^\circ}{\sin 30^\circ \cdot \sin 10^\circ}$$

$$\sin 30^\circ \cdot \sin 10^\circ$$

$$\sin 120^\circ = \sin (90^\circ - 10^\circ) = \cos 10^\circ$$

$$2CE = \frac{BE \cdot \sin 60^\circ}{\sin 10^\circ \cdot \cos 10^\circ}$$

$$CE = BE \Rightarrow \triangle BEC - \text{равнобедренный,}$$

т.к. $\angle BEC = 60^\circ \Rightarrow \triangle BEC -$
- равнобедренный

т.т.т.