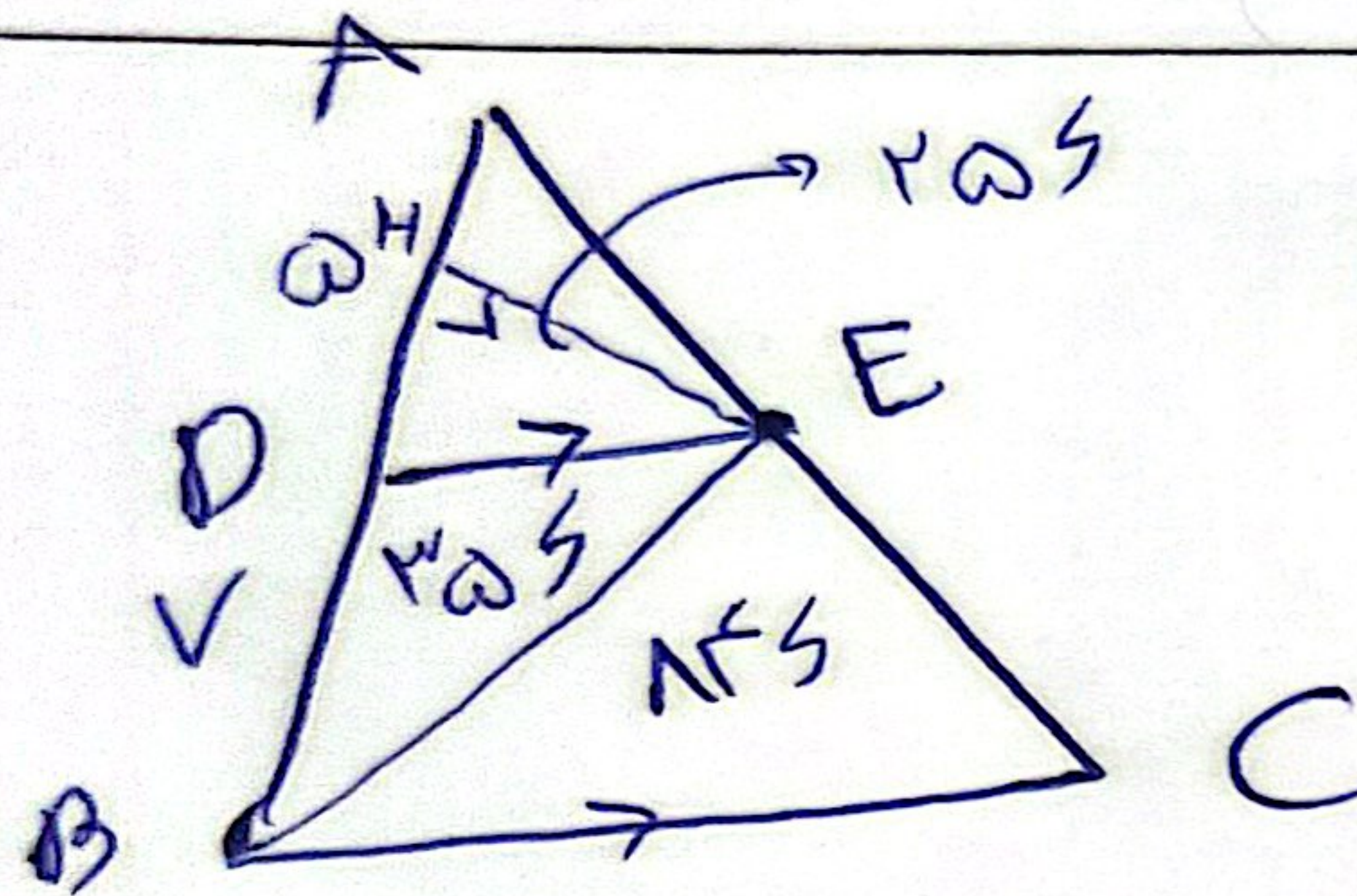


نام و نام خانوادگی آریه قریه پاسخنامه تشریحی تکلیف شماره ۲۲ کلاس باز هم سر
 ۱۹



$$DE \parallel BC \rightarrow \triangle ADE \sim \triangle ABC$$

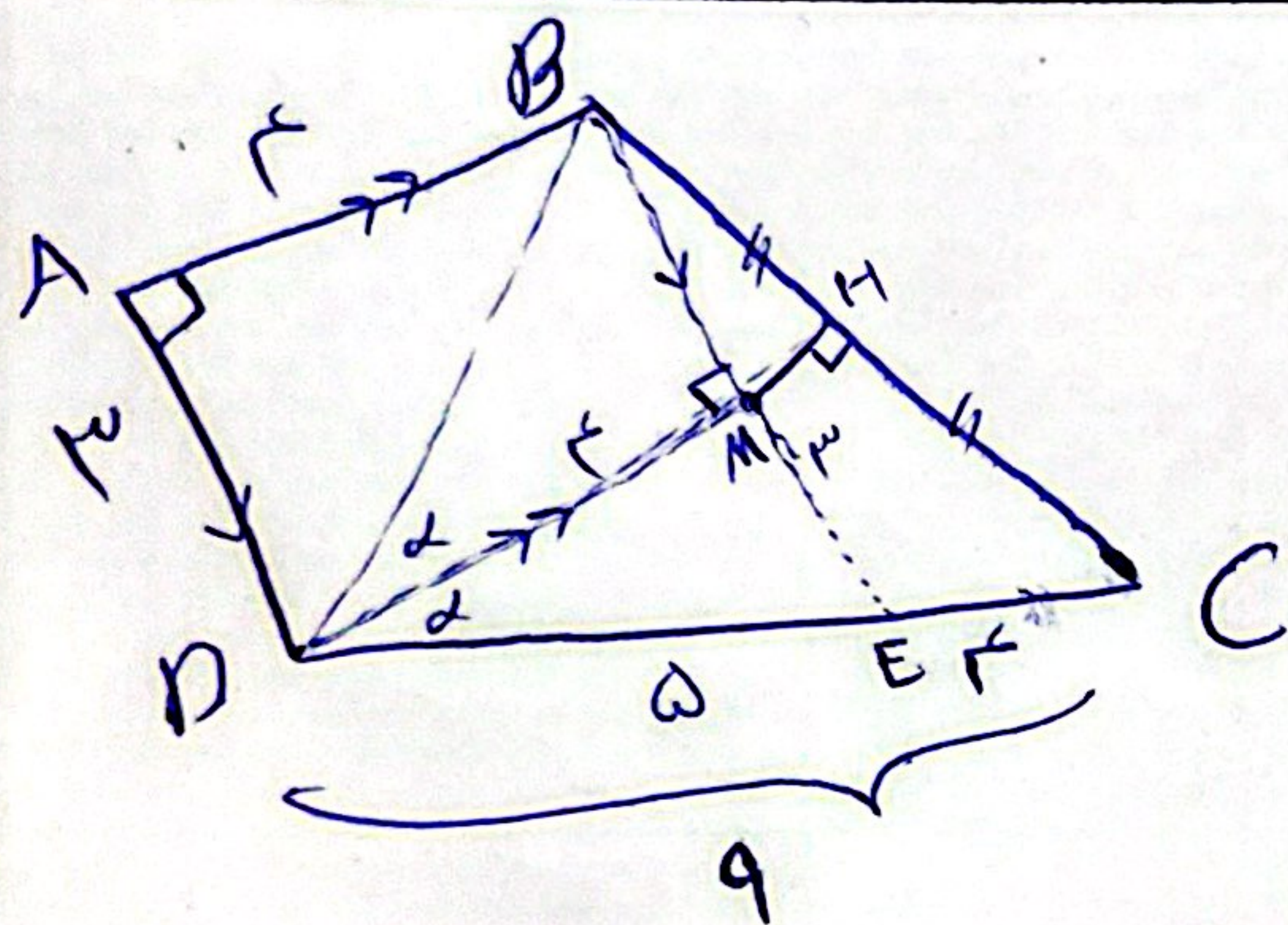
$$\left(\frac{5}{14}\right)^2 = \frac{S_{\triangle ADE}}{S_{\triangle ABC}} = \frac{25}{144}$$

$$\frac{\triangle ADE, \triangle BDE}{\text{ارتفاع مشترک}} \rightarrow$$

$$\frac{S_{\triangle ADE}}{S_{\triangle BDE}} = \frac{1}{2} \times \frac{AE}{BE} \times \frac{AD}{BD} = \frac{5}{7} = \frac{25}{49}$$

$$\left\{ \frac{S_{\triangle CDE}}{S_{\triangle ADE}} = \frac{14}{25} = \frac{14}{25} \right\}$$

۲



$$\begin{cases} \hat{M}_1 = \hat{M}_2 = 90^\circ \\ DM = ME \end{cases} \rightarrow \Delta DM \cong \Delta ME$$

$$\{ \text{I. O. } BM = ME$$

$$\begin{matrix} M, H \\ BE, BC \text{ bisecting} \\ \hat{B} = \hat{B} \end{matrix}$$

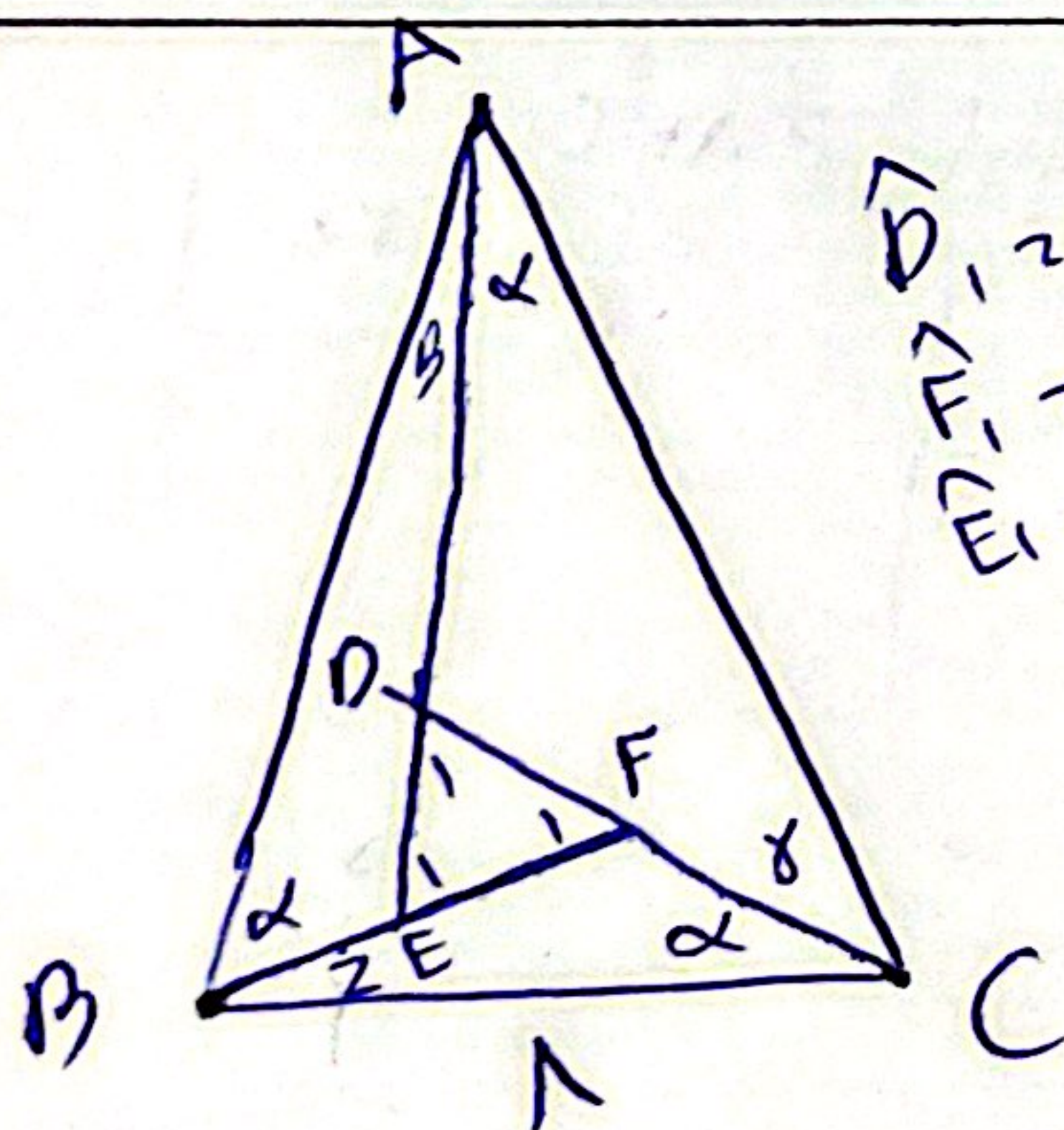
$$\Delta BMH \sim \Delta BEC$$

$$\{ \text{I. O. } \frac{BM}{BE} = \frac{MH}{EC} \rightarrow MH = \frac{1}{2} EC$$



(2)

r



$$\begin{aligned} \hat{D}_1 &= \alpha + \delta = \hat{C} \\ \hat{E}_1 &= \alpha + \gamma = \hat{B} \end{aligned}$$

$$\rightarrow \Delta ABC \sim \Delta DEF$$

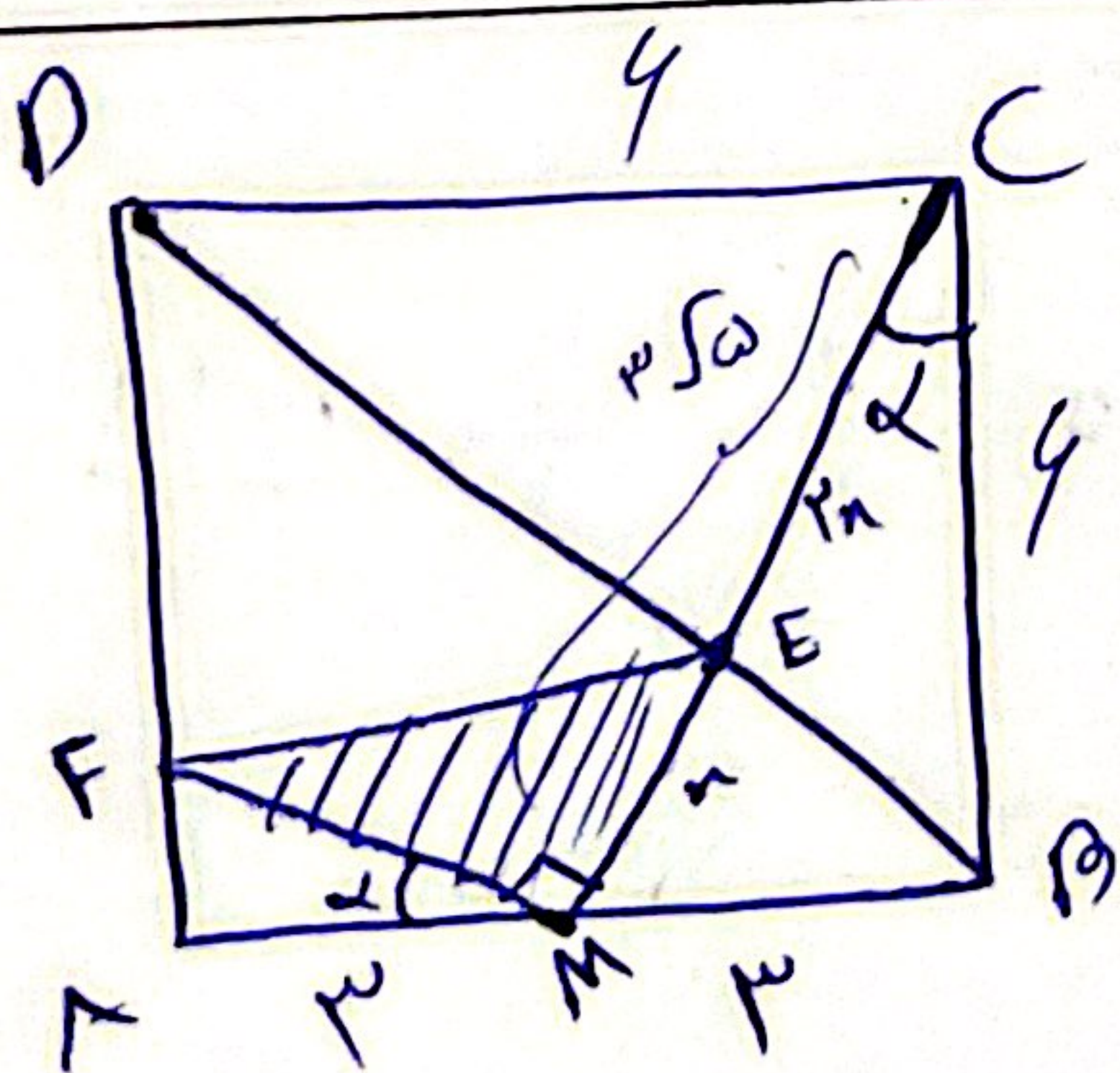
$$\{ \text{I. O. } \frac{AB}{EF} = \frac{AC}{DF}$$

$$\rightarrow AB = 9/4$$



(2)

w



$$\cos \alpha = \frac{4}{5} = \frac{FM}{5} \rightarrow FM = 3$$

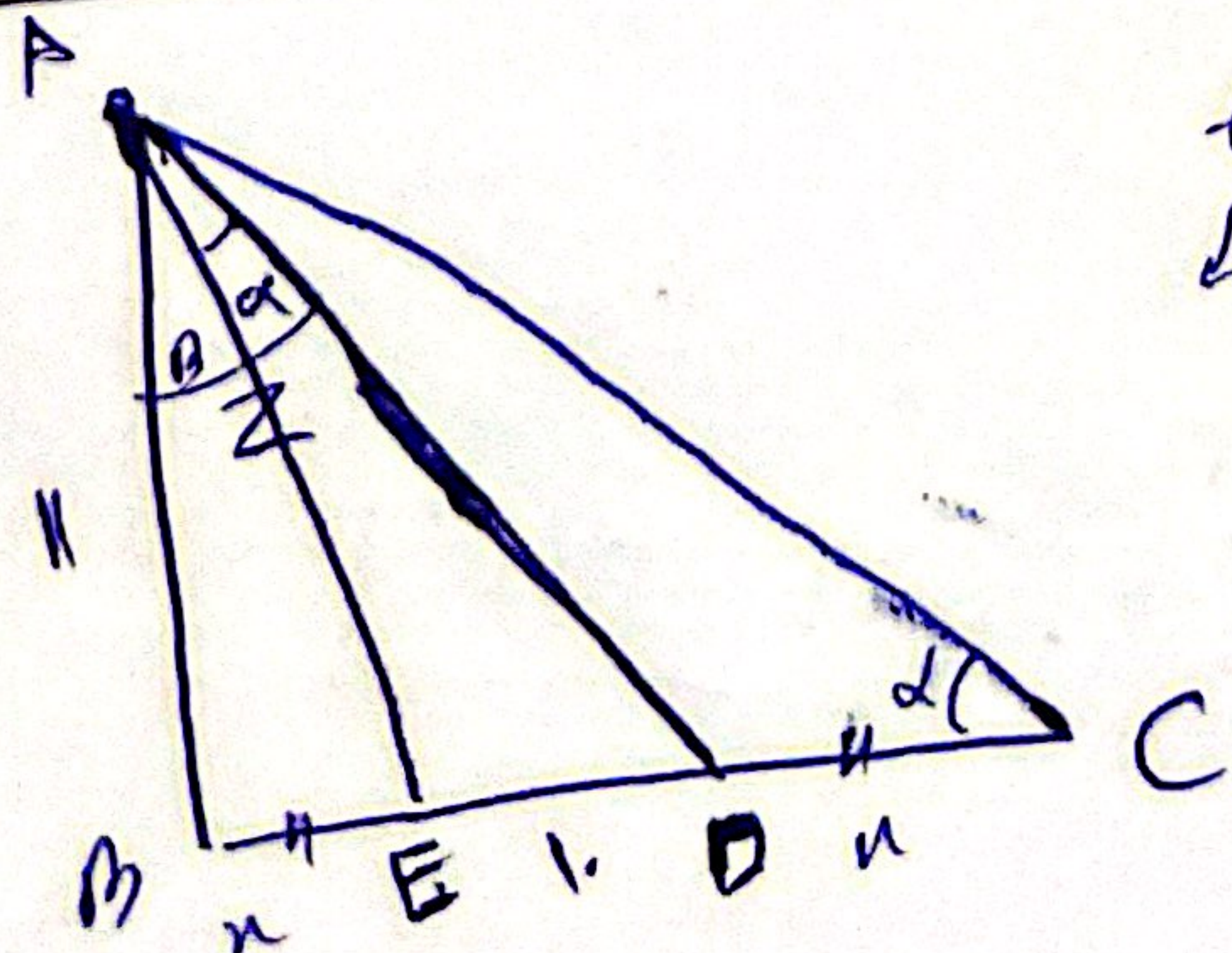
$$DC \parallel MB \rightarrow \Delta DCE \sim \Delta MEB$$

$$\{ \text{I. O. } \frac{DC}{MB} = \frac{CE}{ME} = \frac{1}{2}$$

$$n = \sqrt{5}$$

$$\Delta FME = \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{8}$$

(2)



$$\tan \angle B = \tan \alpha$$

$$\frac{\tan \alpha - \tan \beta}{1 + \tan \alpha \tan \beta} = \frac{1}{1 + \tan \alpha \tan \beta}$$

$$\frac{1}{1 + \tan \alpha \tan \beta} = \frac{1}{1 + \frac{1}{\tan \alpha \tan \beta}}$$

$$\frac{1 + \tan \alpha \tan \beta}{1 + \frac{1}{\tan \alpha \tan \beta}} = \frac{1 + \tan \alpha \tan \beta}{1 + \frac{1}{\tan \alpha \tan \beta}}$$

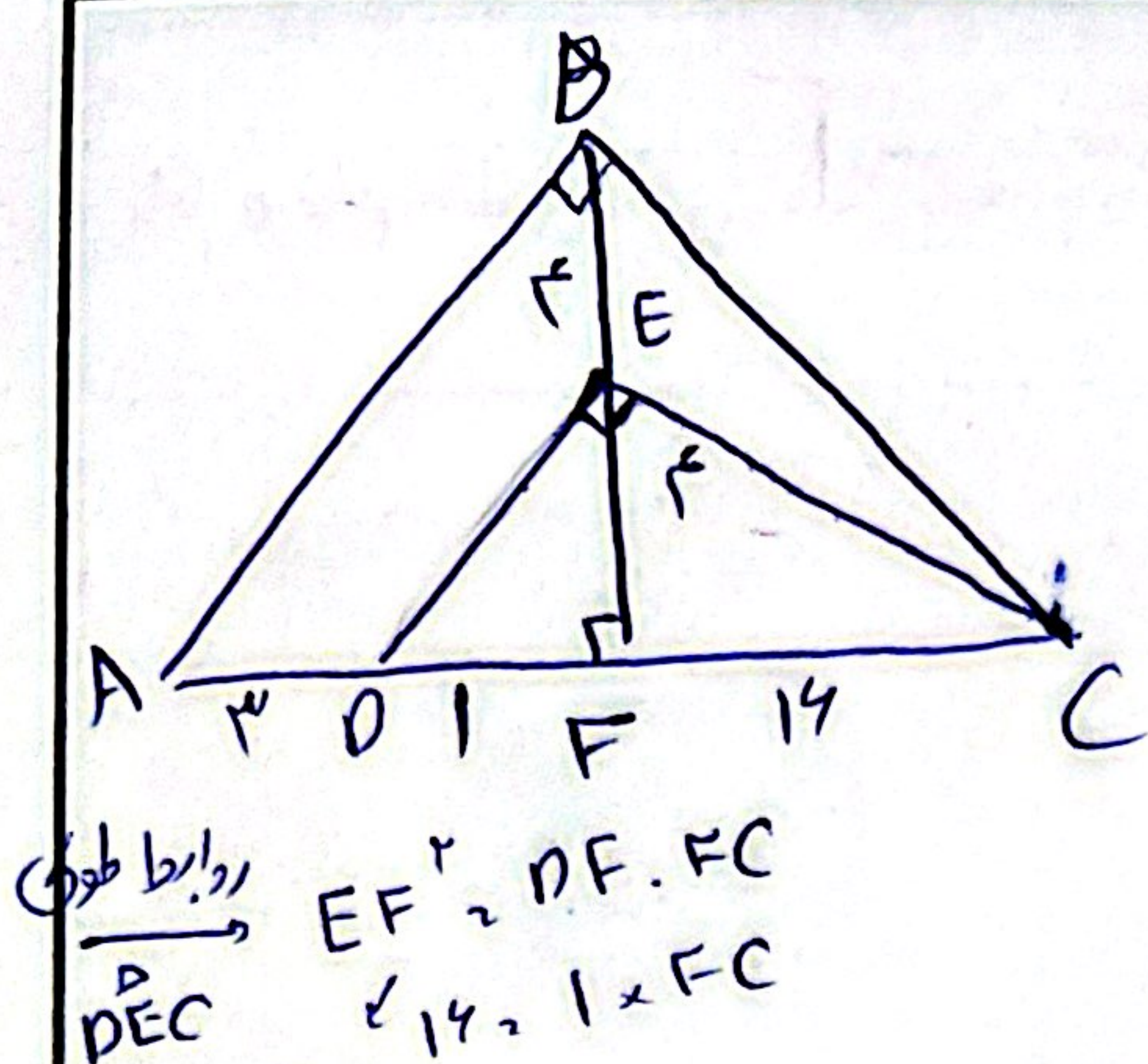
$$\frac{1 + \tan \alpha \tan \beta}{1 + \frac{1}{\tan \alpha \tan \beta}} = \frac{1 + \tan \alpha \tan \beta}{1 + \frac{1}{\tan \alpha \tan \beta}}$$

$$\begin{aligned} n^2 + 1 \cdot n + 1 &= 1 + n^2 \\ n^2 - 1 \cdot n + 1 &= 1 + n^2 \\ (n-1)(n-1) &= 0 \end{aligned}$$

$$\rightarrow DC = BE = \alpha$$

(2)

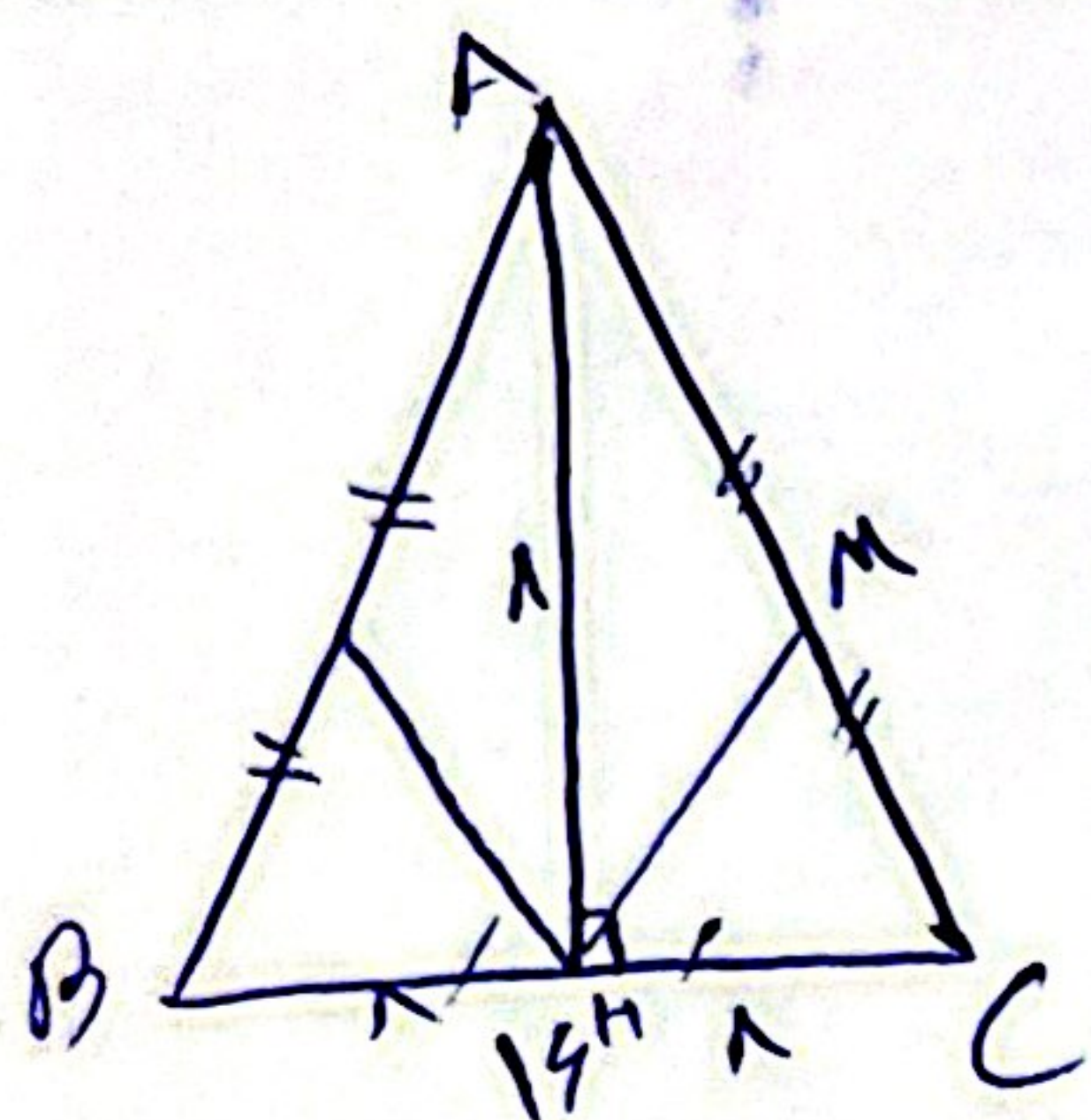
o



$\frac{AB}{BC} = \frac{AE}{EC}$ (by similarity)
 $\frac{AB}{BC} = \frac{1}{13}$
 $BC = 13 \times AB$

(2)

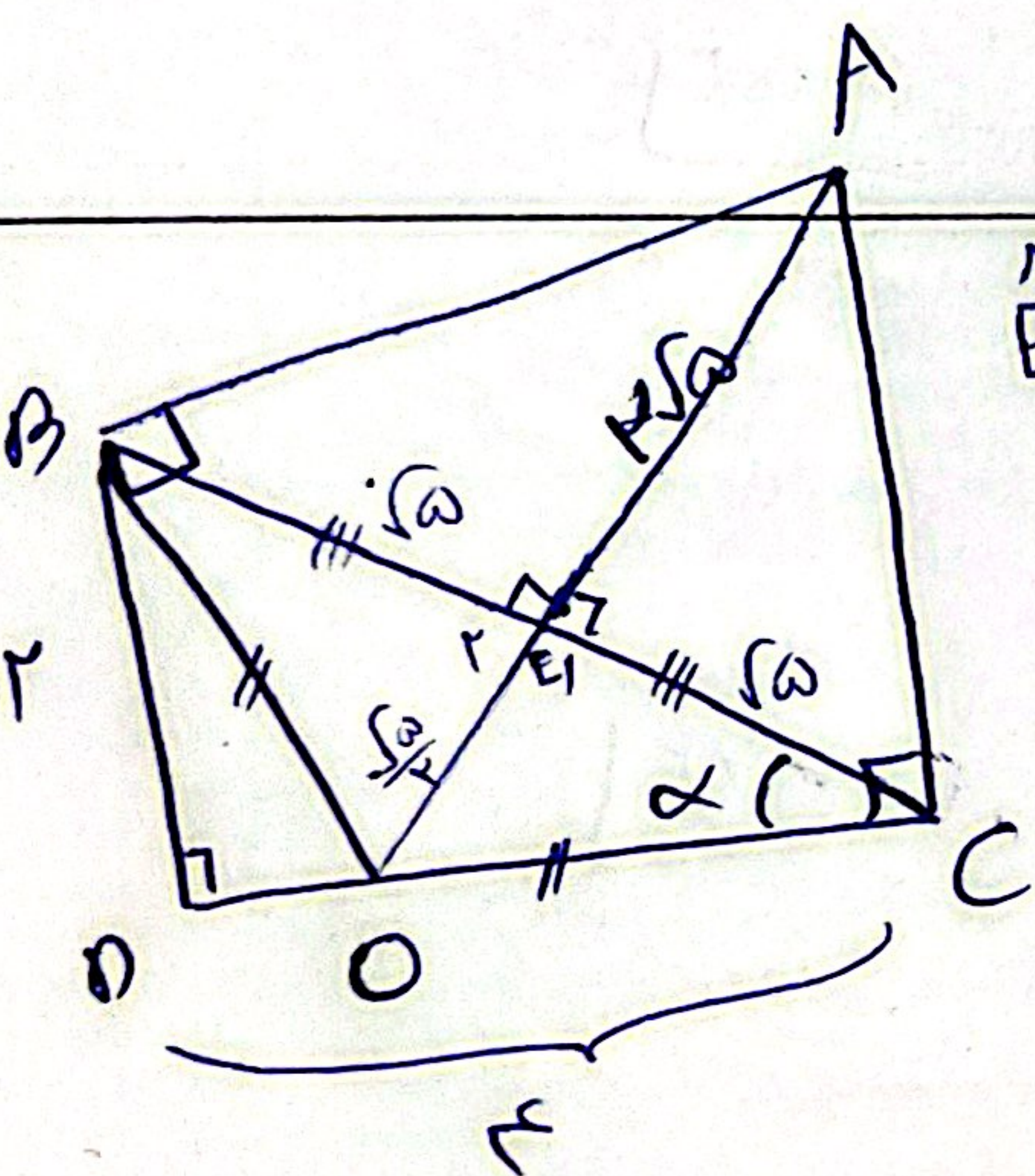
9



$\frac{AH}{HC} = \frac{AE}{EC}$ (by similarity)
 $\frac{1}{HC} = \frac{1}{13}$
 $HC = 13$

(1)

7



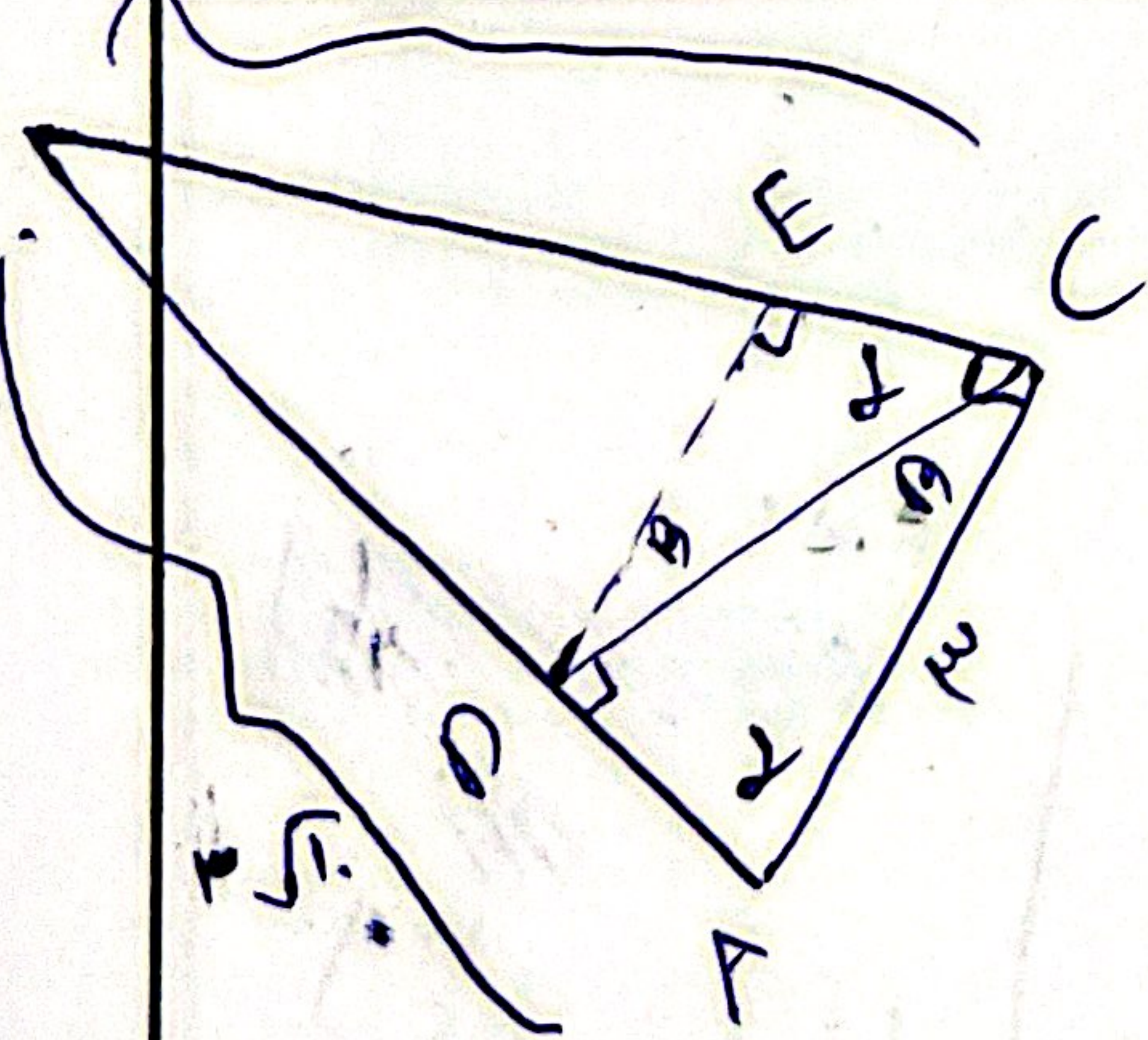
$\angle E_1 = \angle E_2 = 90^\circ$
 $OE = OE$
 $\triangle OEC \cong \triangle OED$
 $EC = ED$

$\triangle ABC$ is right-angled at B, $BC = 15$
 $\tan \alpha = \frac{OE}{15}$
 $\frac{1}{15} = \frac{1}{15} \rightarrow OE = 15$

$\triangle ABE \cong \triangle CDE$
 $AB = CD = 15$
 $AE = CE = 15$

(2)

9



$\sin \alpha = \frac{9}{13} = \frac{1}{13}$

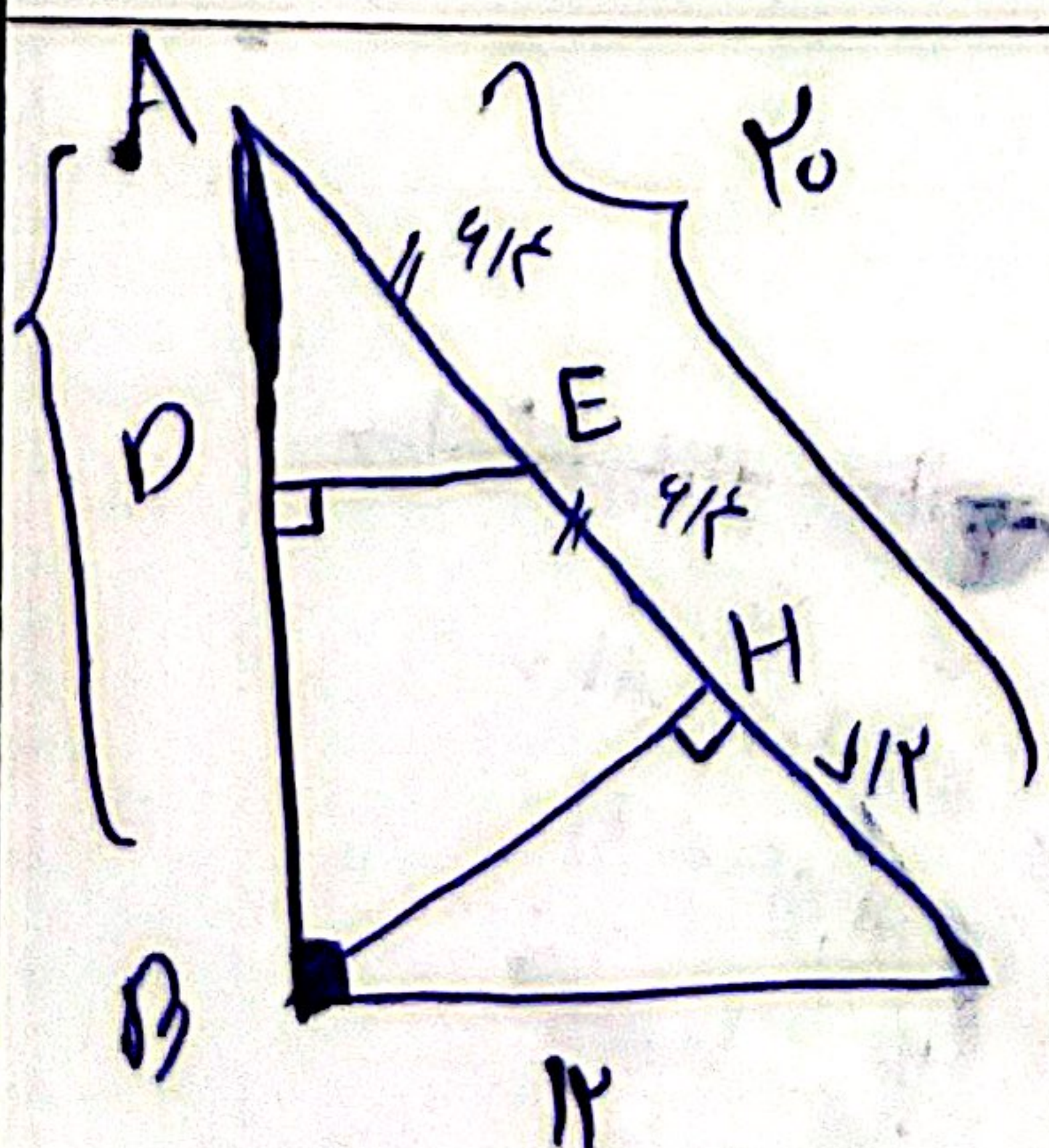
$DC = 13 \sin \alpha = 9$

$EC = \frac{DC}{\sin \alpha} = \frac{9}{1/13} = 117$

$BE = 9 - \frac{9}{1} = \frac{11}{1} = 11$

(2)

10



$\frac{AB}{BC} = \frac{AD}{DC}$ (by similarity)
 $\frac{1}{13} = \frac{AD}{DC}$
 $DC = 13 \times AD$

$\frac{DE}{BC} = \frac{AE}{AC}$ (by similarity)
 $\frac{DE}{13} = \frac{AE}{13}$
 $DE = AE$

(2)