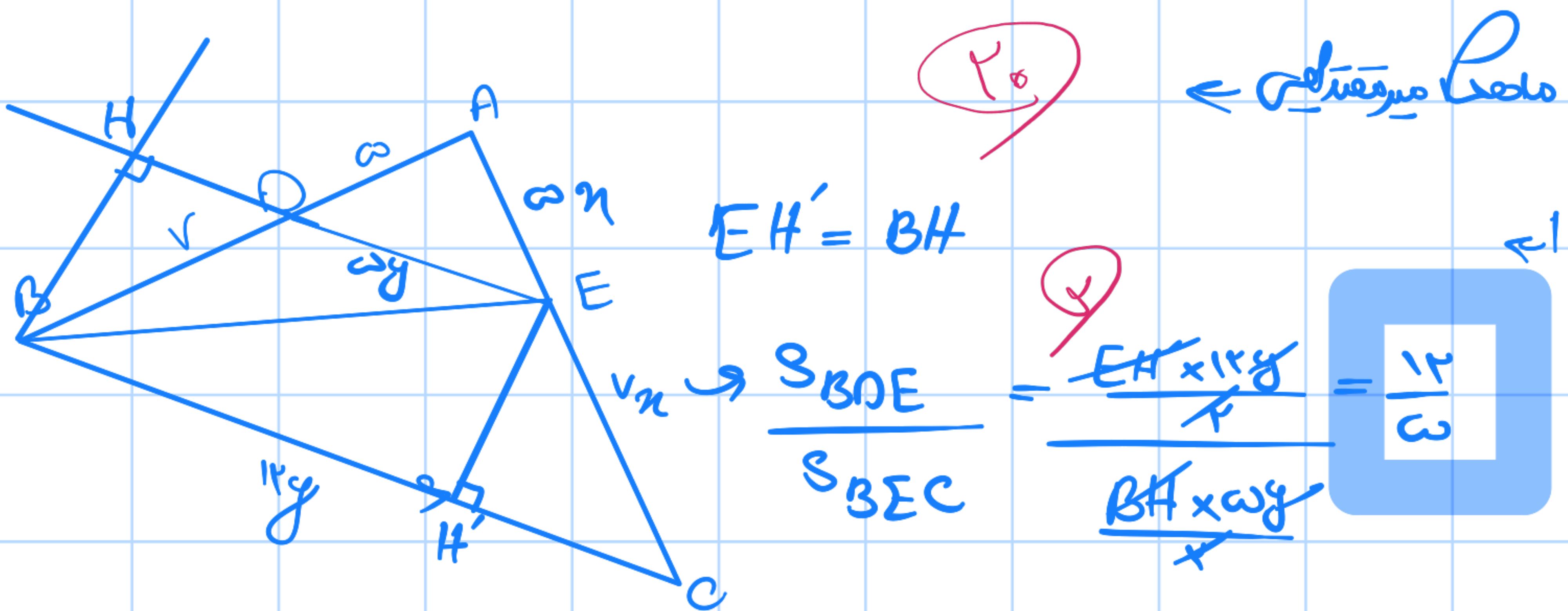
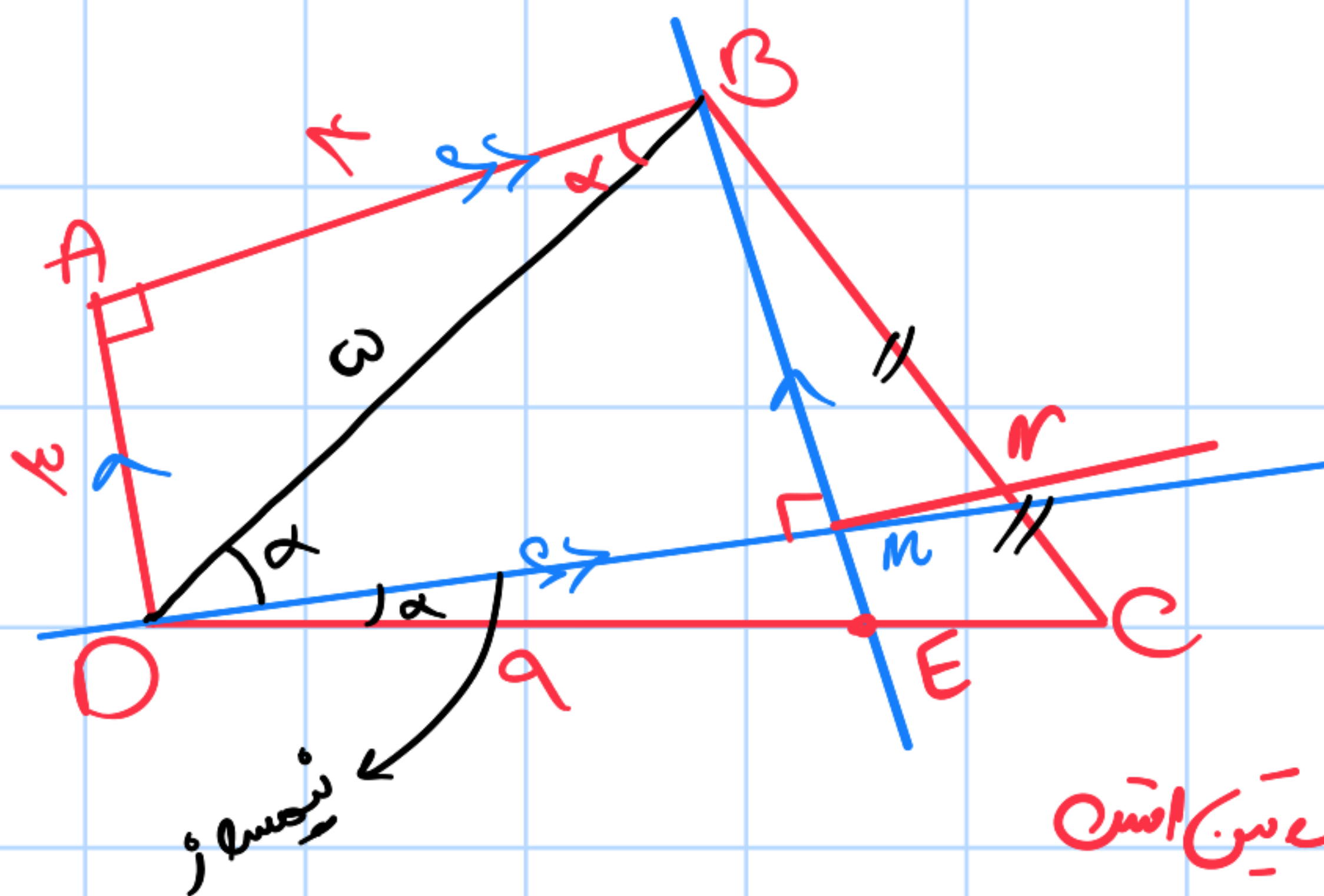




$$\frac{AE}{AC} = \frac{AD}{BA} = \frac{ED}{BE}$$



$$BD' = AB' + AD' = 12 + 8 = 20 \Rightarrow BD = 20$$

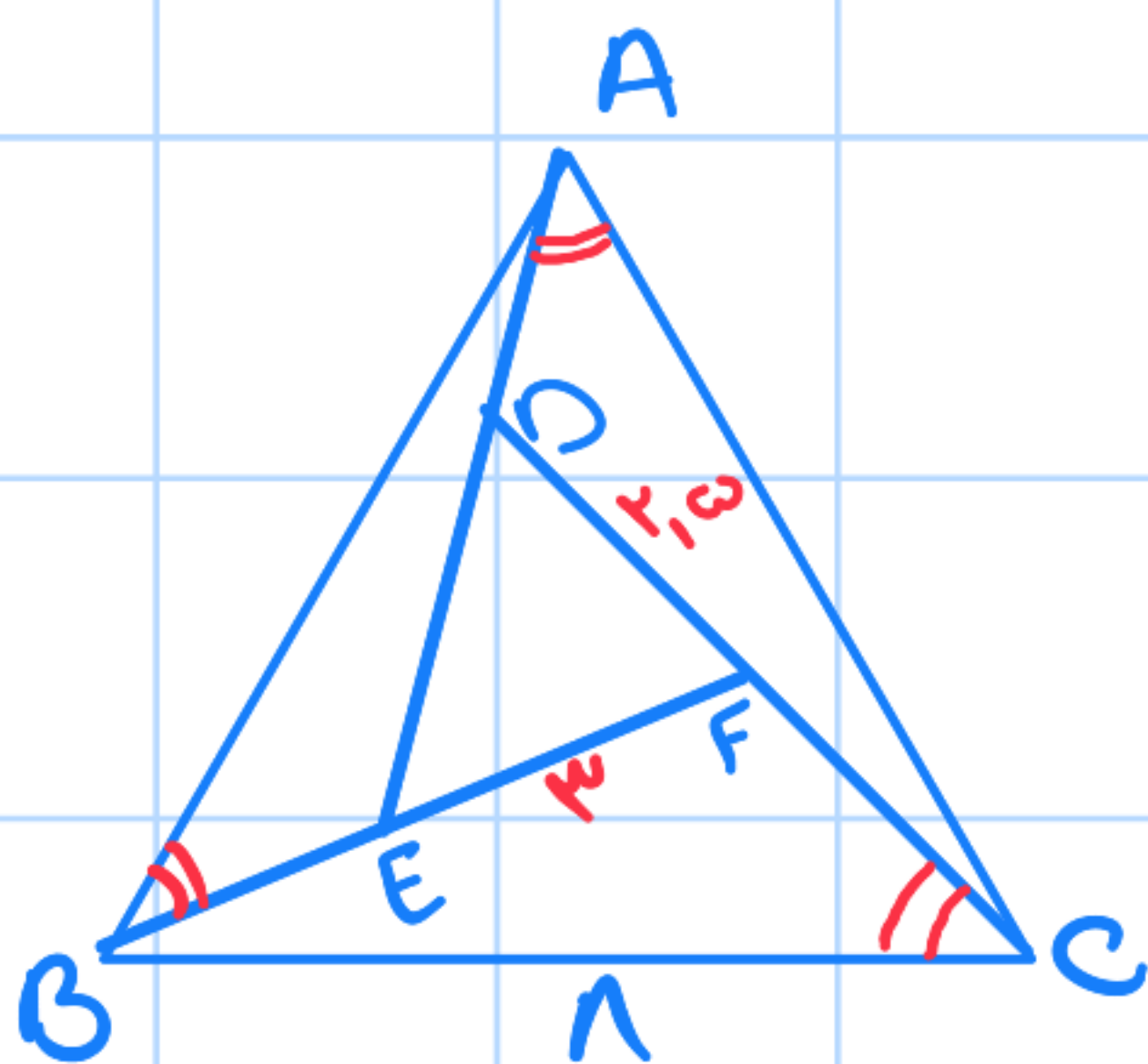
$$BD \Rightarrow BD = DE + \omega \quad EE = DE - DE = 4 - \omega + 12$$

$$BM = ME = 13 \leftarrow \text{در این صورت که DM نسبت دارد به BD و DE}$$

$$\frac{BM}{ME} = \frac{BN}{NC}$$

$$\rightarrow MN \parallel EC \Rightarrow \frac{MN}{EC} = \frac{1}{2}$$

$$\rightarrow MN = 4$$



$$\triangle DEF \sim \triangle ABC$$

$$\Rightarrow \frac{DF}{BC} = \frac{1}{2}$$

$$\Rightarrow n = 9,9$$

$$BM = AM = 3$$

↖

$$BM \parallel DC \Rightarrow BME \sim DEC \rightarrow \frac{ME}{CE} = \frac{BM}{DE} = \frac{3}{4} \cdot \frac{1}{2} = \frac{3}{8}$$

$$\Rightarrow BM = CM = BE + EM = 4 + 3 = 7 \quad \text{↻}$$

$$\rightarrow CM = 7\sqrt{2} \rightarrow ME = \sqrt{2}, CE = 2\sqrt{2}$$

$$AMF \sim BCM \Rightarrow \frac{AM}{BC} = \frac{MF}{MC} \Rightarrow \frac{3}{4} = \frac{MF}{7\sqrt{2}} \Rightarrow$$

$$MF = \frac{3}{4} \sqrt{2}$$

$$S_{MFE} = \frac{1}{2} \times ME \times MF = \frac{1}{2} \times (\sqrt{2} \times \frac{3}{4} \sqrt{2})$$

$$= \frac{3}{4}$$

$$= 3\sqrt{2}$$

$$ABE \rightarrow AE^2 = AB^2 + BE^2 \rightarrow$$

↖

$$11^2 + 2^2 \Rightarrow AE = \sqrt{11^2 + 2^2} \quad \text{↻}$$

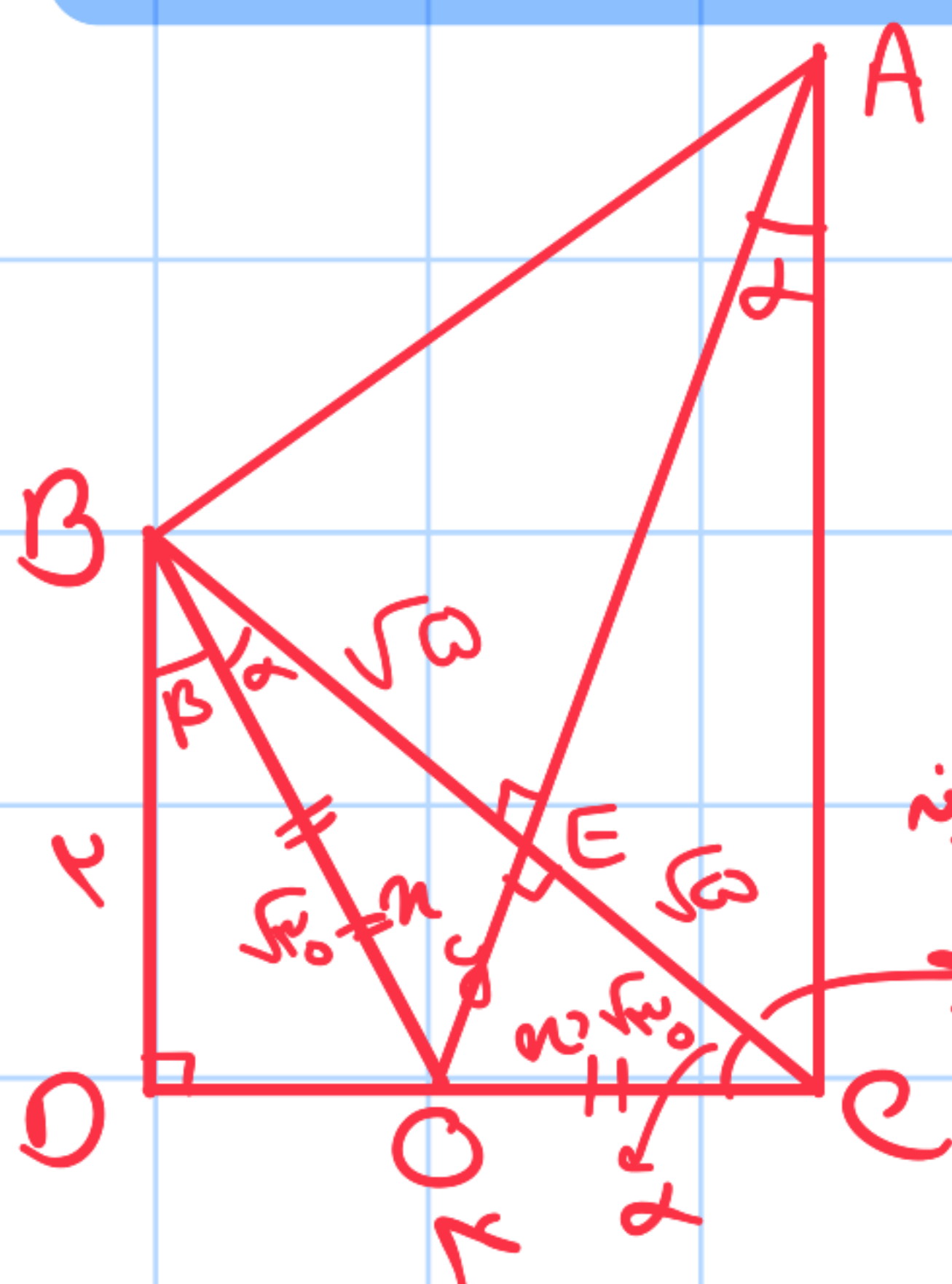
$$AEE \sim ACD \Rightarrow \frac{AE}{ED} = \frac{EC}{AE} \Rightarrow AE^2 = ED \times EC$$

$$\rightarrow 11^2 + 2^2 = 10(10 + 2) \rightarrow$$

$$b^2 + b^2 = 14^2 \Rightarrow 2b^2 = 196 \Rightarrow b^2 = 98 \Rightarrow b = 7\sqrt{2}$$

مسئله را در یک مثلث کوچک تر
پس با آن مثلث تا یک المانی است
 $b = 7\sqrt{2}$

$$\sqrt{(7\sqrt{2})^2 + (7\sqrt{2})^2} = 14 + 32 = 140 \Rightarrow 7\sqrt{10}$$



در مثلث قائم‌الزاویه ABCD از زاویه برابر F عمود می‌اندازیم

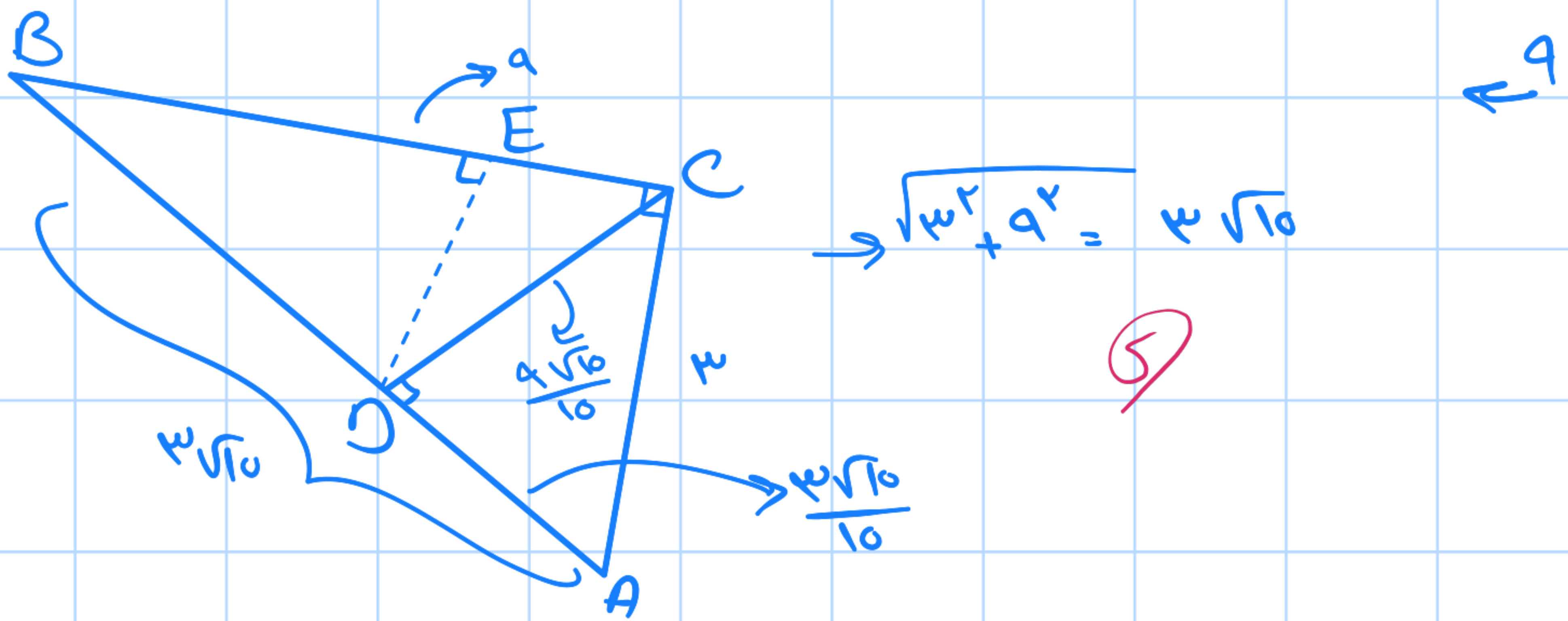
در مثلثات، عمود می‌اندازیم

$$BC = \sqrt{a^2 + b^2} + 2\sqrt{a} = 2BE + 2EC$$

$$BE + EC = \sqrt{a}$$

$$\frac{a}{\sqrt{a}} = \frac{b}{AE} = \frac{2\sqrt{a}}{a} \Rightarrow AE = 2\sqrt{a}$$

$$S_{ABE} = \frac{AE \times BE}{2} = \frac{2\sqrt{a} \times \sqrt{a}}{2} = a$$



$$\rightarrow \sqrt{w^2 + a^2} = w\sqrt{10}$$

5

$$\triangle DAC \sim \triangle ABC \rightarrow \frac{AC}{AB} = \frac{DA}{AC} = \frac{DC}{BC} \rightarrow \frac{w}{w\sqrt{10}} = \frac{DA}{w} = \frac{DC}{a}$$

$$DA = \frac{w\sqrt{10}}{10}$$

$$\triangle DEB \sim \triangle ABC \rightarrow \frac{ED}{AC} = \frac{EB}{BC} = \frac{BD}{BA} \rightarrow \frac{ED}{w} = \frac{EB}{a} = \frac{w\sqrt{10} - DA}{w\sqrt{10}}$$

$$\rightarrow EB \times w\sqrt{10} = a \left(w\sqrt{10} - \frac{w\sqrt{10}}{10} \right) \rightarrow$$

$$EB \times w\sqrt{10} = a \times \frac{9w\sqrt{10}}{10} \rightarrow EB = 1,1$$

