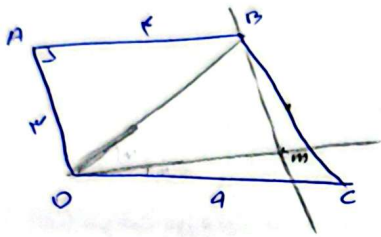


V_1, V_2

$$\frac{S_{ACE}}{S_{ADE}} = \frac{h_1 \times BC}{h_1 \times DE} = \frac{BC}{DE}$$

$$\triangle ADE \sim \triangle ABC \quad \leftarrow DE \parallel BC \text{ is}$$

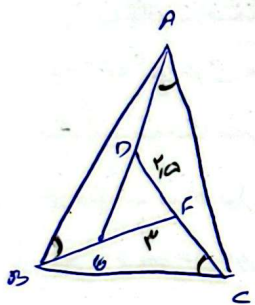
$$\frac{DE}{BC} = \frac{AD}{AB} \rightarrow DE = \frac{AD}{AB} BC$$



$$\hat{BDC} = \hat{BDM}$$

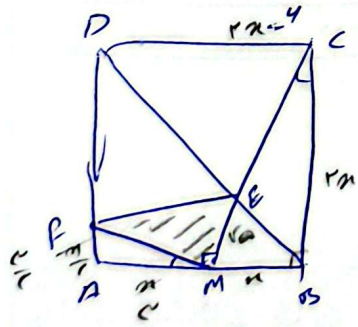
$AD \parallel BC$
 $AB \parallel DC$
 $\therefore AC \parallel EM$

$$\hat{ABF} = \hat{CAE} = \hat{BCD}, EF = r, DF = a, AB = b$$



$$\hat{BCE} = \hat{AMF}$$

$$S = \frac{ra \times \sqrt{a}}{r} = \frac{1}{2} \frac{a}{r}$$



$$\hat{B} = \hat{A} = 90^\circ$$

$$\hat{MCE} = \hat{AMF}$$

$$\triangle DCE \sim \triangle EMB$$

$$\frac{AM}{CB} = \frac{AF}{MB} \rightarrow AF = \frac{m}{c}$$

$$MC = FM + m \Rightarrow MC = a\sqrt{2}$$

$$\frac{MB}{DE} = \frac{EM}{EC}$$

$$\frac{MB}{DE} = \frac{EM}{EC} \rightarrow \frac{MB}{a\sqrt{2}} = \frac{EM}{a\sqrt{2}} \rightarrow MB = EM$$

$$EM = \frac{\sqrt{2}a}{2} \rightarrow EM = \sqrt{a}$$

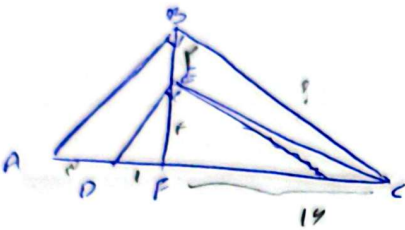
$$FM = \sqrt{\frac{a}{2} + a} = \sqrt{\frac{3a}{2}} = \frac{\sqrt{6}a}{2}$$

$$\hat{A}BC = \hat{C}ED = 90^\circ$$

$$AD = 12, EC = 2, DE = 1$$

$$BC = ? \rightarrow BE = ?$$

مطلوبه



$$\hat{E}CF = \hat{B}EA \rightarrow EC = 2$$

$$BE = AD + EC \rightarrow BE = 12 + 2 = 14$$

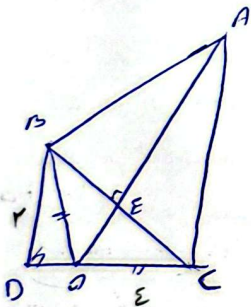
$$BC^2 = BE^2 + EC^2 \rightarrow BC = \frac{14^2 + 2^2}{2 \times 2} = 14.1$$

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$$CD = 5, BD = 7, \hat{ACD} = 90^\circ, \text{SABE} = ?$$



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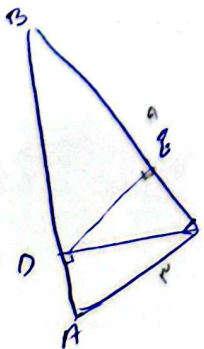
$$BC = 9, AC = 12, DE \perp BC, BE = ?$$

$$DE \perp BC, AC \perp BC \rightarrow DE \parallel AC$$

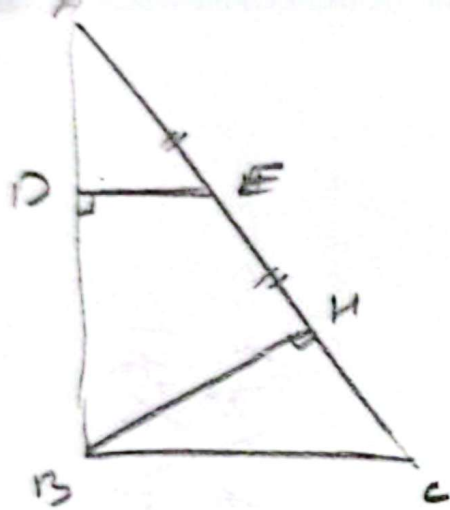
$$DE \parallel AC \rightarrow \triangle BED \sim \triangle ABC$$

$$\frac{AB}{BC} = \frac{BE}{AC} \Rightarrow \frac{AB}{9} = \frac{BE}{12} \Rightarrow AB = \frac{3}{2} BE$$

$$BC^2 = BD \times BA \rightarrow 81 = BE \times \frac{3}{2} BE \rightarrow BE = \frac{9\sqrt{3}}{2}$$



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$$BC = 12$$

$$AB = 14$$

$$BH \times AC = AB \times BC$$

$$BH \times 20 = 12 \times 14 \Rightarrow \frac{BH}{20} = \frac{14}{10} = 1.4$$

$$\text{مَقَامِ الْمَقَامِ} = AC^2 = AB^2 + BC^2$$

$$AC^2 = (12)^2 + (14)^2 \rightarrow AC = 20$$

$$CH \times AC = BC^2 \rightarrow CH \times 20 = 12 \times 12 \rightarrow CH = \frac{144}{20} = 7.2$$

$$AH = AC - CH = 20 - 7.2 = 12.8 \rightarrow AE = 7.2$$

$$\hat{D} = \hat{H} = 90^\circ$$

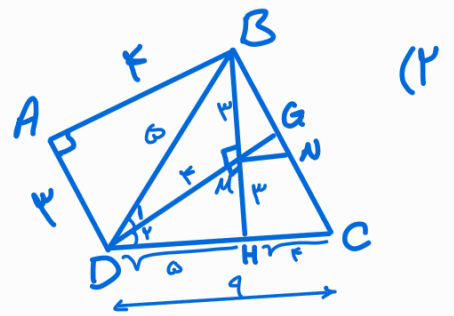
$$\triangle ADE \sim \triangle ABH$$

$$\frac{AE}{AB} = \frac{DE}{BH}$$

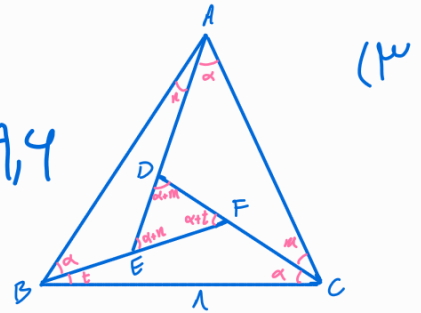
هليا صفدریان

$$DE = \frac{7.2 \times 7.2}{14} = 3.6$$

$\hat{D}_1 = \hat{D}_2 \leftarrow DMH$, BDM هم نسبت مستقیم
 دو مثلث BHC , BMN با نسبت ۲ و مشابه اند پس $\frac{1}{\mu} = \frac{HC}{BC}$ است
 بنابراین فاصله M از وسط ضلع BC برابر ۲ است



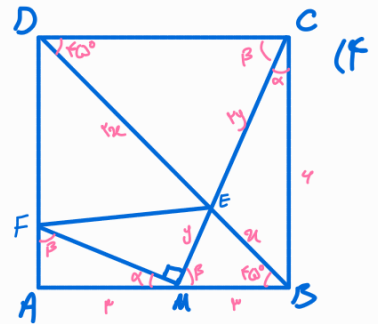
$$\triangle ABC \sim \triangle DEF \rightarrow \begin{cases} F = B \\ D = C \\ A = E \end{cases} \rightarrow \frac{AB}{\mu} = \frac{1}{2,5} \rightarrow AB = 9,4$$



$$MC^2 = 4^2 + 3^2 \rightarrow MC = 5\sqrt{2}$$

$$\tan F = \frac{\mu}{AF} = \tan M = \frac{BC}{MB} = 2 \rightarrow AF = \frac{\mu}{2}$$

$$FM^2 = AF^2 + AM^2 \rightarrow MF = \frac{5\sqrt{2}}{2}$$

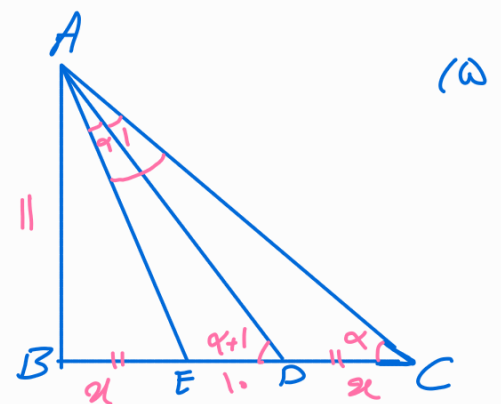


$$DEC, MEB \text{ دو مثلث مشابه } = \frac{4}{\mu} = 2 \rightarrow 3y = 5\sqrt{2} \rightarrow y = \sqrt{2}$$

$$S_{FME} = \frac{1}{2} ME \times MF = \frac{10}{2}$$

$$\triangle CAE \sim \triangle AED \rightarrow \begin{cases} \alpha = \alpha \\ \alpha + 1 = \alpha + 1 \\ \hat{E} = \hat{E} \end{cases} \rightarrow \frac{AE}{ED} = \frac{EC}{AE}$$

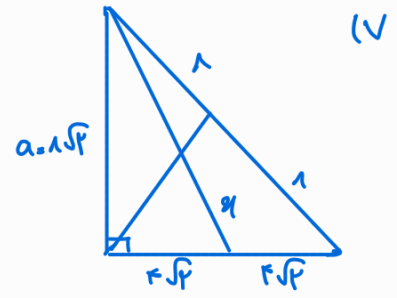
$$\frac{\sqrt{2^2 + 1^2}}{1} = \frac{2+1}{\sqrt{2^2 + 1^2}} \rightarrow 2 = 1 \pm \sqrt{2}$$



$$EF^2 = DF \times FC \rightarrow FC = 14 \quad BC^2 = FC \times AC \rightarrow BC = 1\sqrt{2} \quad (4)$$

$$a^r + a^r = 14^r \rightarrow a = \sqrt{14}$$

$$g^T = (A^T F)^T + (F^T F)^T \rightarrow g = F^T \sqrt{10}$$



$$\gamma_{\alpha+\beta} = 90^\circ$$

$$BD' + DC' = BC' \rightarrow BC = r\sqrt{a} = rBE = rEC$$

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

$$\frac{V}{\sqrt{\omega}} = \frac{F}{AE} = \frac{V\sqrt{\omega}}{\omega} \rightarrow AE = V\sqrt{\omega}$$

$$S_{ABE} = \frac{1}{r} AE \times BE = \Delta$$

