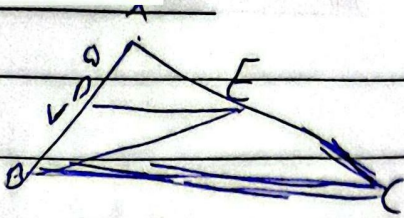


①

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

$$\frac{AD}{AB} = \frac{4}{144}$$

$$\frac{S_{ADE}}{S_{ABC}} = \left(\frac{AD}{AB}\right)^2 = \frac{4}{144}$$

$$S_{BDE} = S_{ABD} - S_{ADE}$$

$$S_{BDE} = S_{ABD} - S_{ADE} = \left(\frac{4}{144} - \frac{4}{144}\right)$$

$$S_{ABD} = \frac{40}{144} S_{ABC}$$

$$S_{BCE} = S_{ABC} - S_{ABE} = \frac{119}{144} S$$

$$\frac{S_{BCE}}{S_{BDE}} = \frac{\frac{119}{144}}{\frac{40}{144}} = \frac{119}{40} \Rightarrow S_{BCE} = \frac{119}{40} S_{BDE}$$

② $BDE \sim BDM$ $AD = 3$ $BM = AB = 3$ $DC = 9$ $DM = AB = 3$ $AB = 3$

$(\text{مقایسه عرضی}) \Rightarrow BC \parallel DM$

۵/۵

بدین ترتیب نام هر نام خانوادگی ننویسید (۵) حق باشد

$$ABF = CAE = BCD$$

$$\frac{AB \cdot EF}{DF} \cdot \frac{r}{r+d} \cdot \frac{q}{r+d} \cdot \frac{r}{r+d}$$

$$\frac{BE}{BC} = \frac{MF}{MA}$$

BCS
MATH

$$ME = \frac{5}{4} \times BE = \frac{BE}{4}$$

9 $F_E \approx \sqrt{E}$

$$S \propto \frac{1}{r} \times E \times h \rightarrow \frac{1}{r} \times E \times \sqrt{r} \times \frac{r}{\sqrt{r}}$$

55 $\frac{1}{2} \times 159$

5

$$BE \text{ s.d. } x \rightarrow BC \text{ s.d. } x_1, x_2, x_3, x_4, x_5, x_6$$

AB₅LI

BF SNC

EHsl

DCSW

$$\begin{array}{l} AD \text{ is } \perp \\ \text{also } EF \text{ is } \perp \\ DE \text{ is } \perp \end{array} \rightarrow AF \text{ is } \perp$$

$$\hat{ABC} \sim \hat{CED} \text{ is } 90^\circ$$

$$\frac{BC}{CE} = \frac{AB}{ED} \rightarrow ED = EF + FD = 1$$

$$BC = \frac{1}{5} \times EF$$

$$= \frac{1 \times \sqrt{5}}{5}$$

$$\frac{BC}{CE} = \frac{1}{5}$$

$$CE = \sqrt{EF^2 + FD^2}$$

$$\rightarrow FC = AF = 1$$

$$CE = \sqrt{1^2 + 1^2} = \sqrt{2}$$

7) $QW = \sqrt{1^2 + 1^2} = 1\sqrt{2}$

$$m = \frac{1}{2} \sqrt{1^2 + 1^2} \rightarrow a = 14$$

$$m = \frac{1}{2} \sqrt{1(14)^2 + 1(1\sqrt{2})^2 - (1\sqrt{2})^2} = \frac{1}{2} \sqrt{46} = \sqrt{11.5}$$

8) $BO \text{ is } \perp CD \text{ is } \perp \rightarrow DO \text{ is } \perp OC \text{ is } \perp$

$$\triangle \text{ is } \frac{1}{2} \times \text{base} \times \text{height} \rightarrow S_{ABE} = S_{BOC}$$

$$\triangle ABE \sim \triangle BOC \rightarrow \frac{AB}{BO} = \frac{AE}{OC}$$

(a) $AC \perp BC$ $DE \perp BC$, BE ?

$$AB = \sqrt{AC^2 + BC^2} = \sqrt{16 + 9} = \sqrt{25} = 5$$

$$\frac{BE}{9} = \frac{5}{12} \rightarrow BE = \frac{9}{12} \times \frac{5 \sqrt{10}}{10} \quad (10)$$

(10) $AB = 14$
 $BC = 14$

~~$AE = 14$~~
 ~~$BE = 14$~~
 ~~$CE = 14$~~

$$AC = \sqrt{AB^2 + BC^2} = \sqrt{14^2 + 14^2} = \sqrt{200} = 10\sqrt{2}$$

$$AD = \frac{AB}{AC} = \frac{14}{10\sqrt{2}} = \frac{7}{5\sqrt{2}}$$

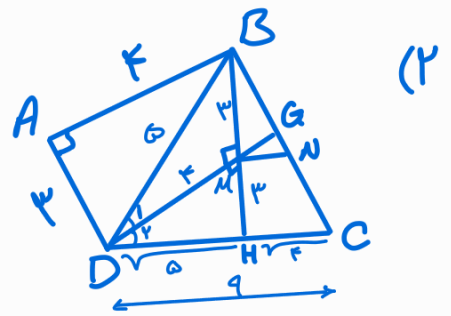
$$AE = \frac{AB}{AC} = \frac{7}{5\sqrt{2}} \rightarrow ABC \sim ADE$$

$$\frac{DE}{14} = \frac{7}{5\sqrt{2}} \rightarrow DE = 14 \times \frac{7}{5\sqrt{2}} = \frac{98}{5\sqrt{2}}$$

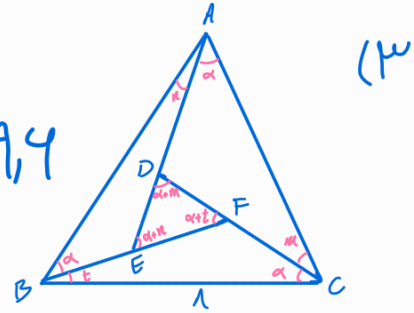
$$\frac{AD}{AB} = \frac{DE}{BC} = \frac{7}{14} \quad (1)$$

$$\frac{S_{BCE}}{S_{BDE}} = \frac{BC}{DE} = \frac{14}{\frac{98}{5\sqrt{2}}} = 5\sqrt{2}$$

$\hat{D}_1 = \hat{D}_2 \leftarrow DMH$, BDM هم‌بستگی هستند
 در مثلث BMC ، با نسبت ۲ به نسبت ۱ از M پس $MC = \frac{1}{2} BC$ است
 بنابراین فاصله M از وسط BC برابر ۲ است



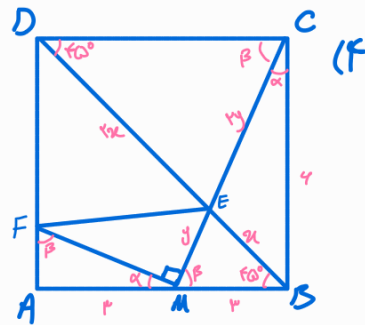
$$\triangle ABC \sim \triangle DEF \rightarrow \begin{cases} F=B \\ D=C \\ A=E \end{cases} \rightarrow \frac{AB}{\mu} = \frac{1}{2,5} \rightarrow AB = 9,4$$



$$MC^2 = 4^2 + 3^2 \rightarrow MC = 5$$

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

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

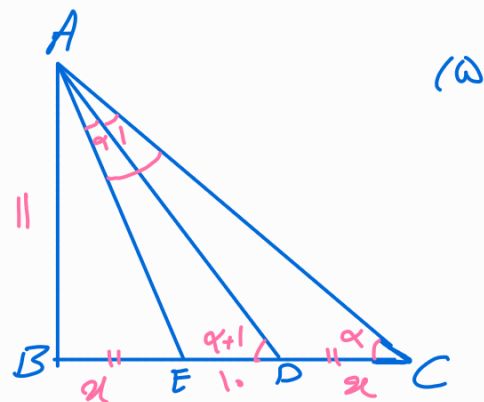


$$DEC, MEB \text{ در مثلث } = \frac{4}{\mu} = 2 \rightarrow \mu y = 5\sqrt{5} \rightarrow y = \sqrt{5}$$

$$S_{FME} = \frac{1}{2} ME \times MF = \frac{15}{2}$$

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

$$\frac{\sqrt{2^2 + 1^2}}{1} = \frac{2+1}{\sqrt{2^2 + 1^2}} \rightarrow 2 = \mu \leq 7$$



$$EF^2 = DF \times FC \rightarrow FC = 14 \quad BC^2 = FC \times AC \rightarrow BC = 1\sqrt{5}$$

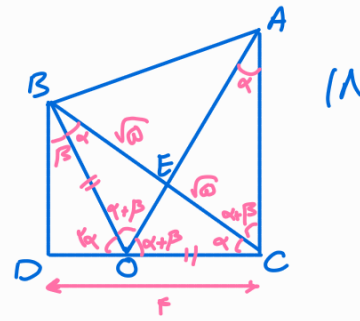
$$\gamma_{\alpha+\beta} = 90^\circ$$

$$BD' + DC' = BC' \rightarrow BC = r\sqrt{2} = rBE = rEC$$

$$\rightarrow BE = EC = \sqrt{2}r$$

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

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



$$\frac{d}{\mu} = \frac{y}{q} \rightarrow y = \mu x$$

$$x^r = y(1-y) = v_x(1-v_x) \rightarrow x = r, v, y = 1, 1$$

