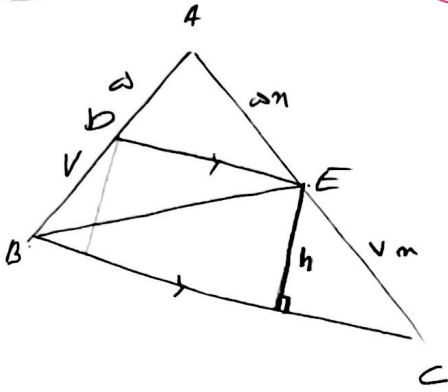


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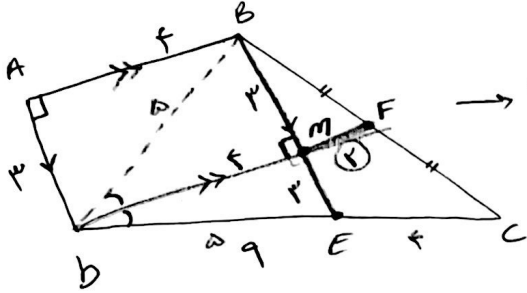
۱- صلع $DE \parallel BC$ صلت $\frac{BCE}{BDE}$ ؟

$$S_{BCE} = h \times BC \times \frac{1}{2} \rightarrow \frac{BC}{DE}$$

$$S_{BDE} = h \times DE \times \frac{1}{2}$$

$$\rightarrow \frac{BC}{DE} = \left(\frac{17}{5} \right)$$

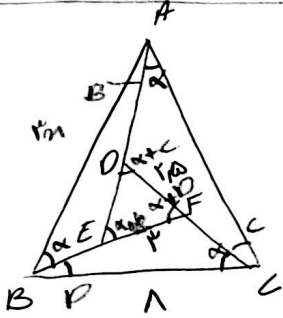
۲- $\triangle ABD, \triangle BDM \rightarrow BM = 3, DM = 4, BD = 5$



$\triangle DBM, \triangle DEM \rightarrow$ $BE \parallel MC \rightarrow$ $MF \parallel EC \rightarrow$ $\frac{MF}{EC} = \frac{1}{2} \rightarrow MF = 2$

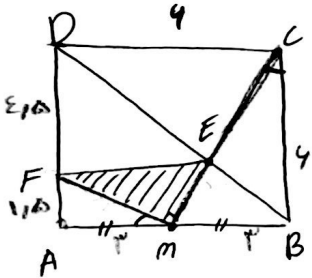
$$\frac{MF}{EC} = \frac{1}{2} \rightarrow MF = 2$$

۳- $\triangle ABC, \triangle DFE \rightarrow$



$$\frac{AB}{7} = \frac{BC}{10} \rightarrow \frac{72}{710} \rightarrow 94$$

۴- صلت $\triangle AMF, \triangle CBM \rightarrow$



$$FM = \left(\frac{4}{7} \right)^2 + 4^2 \rightarrow 4^2 \left(\frac{1}{7} + 1 \right) \rightarrow \frac{3}{7} \sqrt{5}$$

$$\triangle DCE, \triangle BEM \rightarrow CE = 2EM \rightarrow CM = \sqrt{9+16}$$

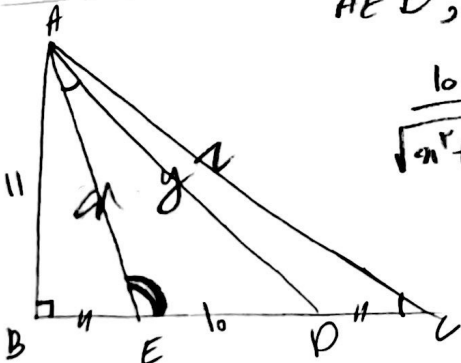
$$EM \rightarrow \sqrt{5} \rightarrow S_{EMF} = \frac{3\sqrt{5}}{7} \times \frac{3}{7} \sqrt{5} \times \frac{1}{2} = \left(\frac{45}{49} \right)$$

$\triangle AED, \triangle AEC \rightarrow$

$$\frac{10}{\sqrt{m^2+11}} = \frac{\sqrt{(10+m)^2+11}}{\sqrt{(10-m)^2+11}} \rightarrow \frac{100}{m^2+11} = \frac{m^2+10m+100+11}{m^2+11}$$

$$\frac{m}{10+m} = \frac{4}{2} = \frac{10}{m} \rightarrow m^2 = 10(10+m)$$

$$11+m^2 = 10+10m \rightarrow m^2-10m+11=0 \rightarrow (m-5)(m-3)=0 \rightarrow m=3$$



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

$$\tan F = \frac{3}{4} = \tan M = \frac{BC}{MB} = 1 \rightarrow AF = \frac{3}{1}$$

$$FM^r = AF^r + AM^r \rightarrow MF = \frac{5\sqrt{2}}{1}$$

$$DEC, MEB \text{ نسبت مشابه در مثلث } = \frac{4}{3} = 1 \rightarrow 3y = 5\sqrt{2} \rightarrow y = \sqrt{2}$$

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

$$2\alpha + \beta = 90^\circ$$

$$BD^r + DC^r = BC^r \rightarrow BC = 5\sqrt{2} = 5BE = 5EC \\ \rightarrow BE = EC = \sqrt{2}$$

$$\frac{3}{\sqrt{2}} = \frac{F}{AE} = \frac{5\sqrt{2}}{5} \rightarrow AE = 5\sqrt{2}$$

$$S_{ABE} = \frac{1}{2} AE \times BE = 5$$

