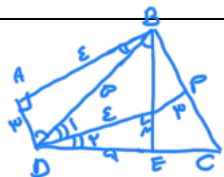


$$\frac{S_{BCE}}{S_{BDE}} = 7 \quad BC \parallel DE, EB \rightarrow \angle_1 = \angle_2$$

$$DE \parallel BC \xrightarrow{\text{موازی}} \frac{DE}{BC} = \frac{AD}{AB} = \frac{AE}{AC} = \frac{a}{14}$$

$$\frac{S_{BCE}}{S_{BDE}} = \frac{\frac{1}{2} \times BC \times BE \times \sin E}{\frac{1}{2} \times DE \times BE \times \sin B} = \frac{17}{a} = 7, E$$

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$$AB \parallel DC, BD \rightarrow \angle B = \angle D, \xrightarrow{\text{موازی}} \angle B + \angle D_1 = \angle D_2$$

$$\left. \begin{array}{l} BD = BD \\ \angle B = \angle D \end{array} \right\} \rightarrow \triangle ABD \cong \triangle BMD$$

$$\angle B = \angle D \rightarrow \angle ADB = \angle BDE \rightarrow \angle 1 = 90^\circ$$

$$\left. \begin{array}{l} DM \text{ میانه} \\ D_1 = D_2 \\ \angle 1 = 90^\circ \end{array} \right\} \rightarrow \triangle DMB \cong \triangle DME \rightarrow DE = a, CE = 2, ME = BM = 3$$

$$BM = ME$$

$$EC \parallel MP \xrightarrow{\text{موازی}} \left\{ \begin{array}{l} BP = PC \\ ME = MB \end{array} \right. \rightarrow \frac{MP}{CE} = \frac{BP}{BC} = \frac{BM}{BE} = \frac{1}{2} \rightsquigarrow MP = \frac{1}{2} \times 2 = 1$$

$$MD = \frac{1}{2} \rightsquigarrow MP = \frac{1}{2} \times 2 = 1$$

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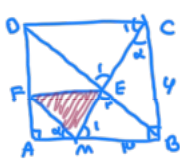


$$\angle FDE \rightarrow \angle FBC \text{ زاویه قائمه} \Rightarrow \angle FDE = \angle B - \alpha + \alpha = \angle B$$

$$\angle FDE \rightarrow \angle ABE \text{ زاویه قائمه} \Rightarrow \angle FDE = \angle A - \alpha + \alpha = \angle A$$

$$\rightsquigarrow \triangle ABC \sim \triangle DEF \rightarrow \frac{DE}{AB} = \frac{EF}{BC} \rightarrow \frac{1}{2} = \frac{2}{AB} \rightarrow AB = 4$$

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$$MC^2 = 4^2 + 3^2 = 25 \rightarrow MC = 5$$

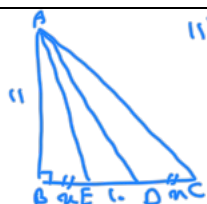
$$DC \parallel AB, CM \rightarrow \angle C_1 = \angle M_1, \angle \rightarrow \frac{DC}{MB} = \frac{CE}{ME} \rightarrow \frac{CE}{ME} = \frac{4}{3} = 2 \rightarrow CE + ME = 5 \rightarrow ME = 5$$

$$\left\{ \begin{array}{l} \angle C_1 = \angle M_1 \\ \angle A = \angle B = 90^\circ \end{array} \right. \rightarrow \triangle CBM \sim \triangle FMA \rightarrow \frac{MB}{AF} = \frac{BC}{AM} = \frac{MC}{MF}$$

$$\frac{5\sqrt{2}}{MF} = \frac{4}{3} \rightarrow MF = \frac{15\sqrt{2}}{4}$$

$$S_{\triangle MFE} = \frac{1}{2} \times \frac{15\sqrt{2}}{4} \times \sqrt{2} = \frac{15}{4}$$

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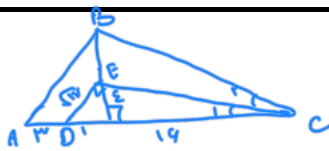


$$11^2 + m^2 \rightarrow AE = \sqrt{11^2 + m^2}$$

$$\triangle BEC \sim \triangle ACD \rightarrow \frac{BE}{ED} = \frac{EC}{AE} \rightarrow BE^2 = ED \times EC \rightsquigarrow 11^2 + m^2 = ED \times EC \rightarrow 11^2 + m^2 = 1 + 10m$$

$$\rightsquigarrow m^2 - 10m + 12 = 0 \rightarrow m = 2, m = 8$$

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$$EF^2 = DF \times FC \rightarrow 14 = 1 \times \frac{FC}{14}$$

$$ED = \sqrt{14+1} = \sqrt{15} \rightarrow 14^2 - (\sqrt{15})^2 = EC^2 \rightarrow EC = 4\sqrt{11}$$

$$BF^2 = AF \times FC = 5 \times 14 \rightarrow BF = 1$$

$$BC^2 = 1^2 + 14^2 = 197 \rightarrow B = 1\sqrt{197}$$

مشکلت برآید

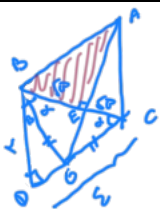
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$$m^2 = 1^2 + 14^2 \rightarrow m = 1\sqrt{15} \rightarrow$$

$$\sqrt{(1\sqrt{15})^2 + (4\sqrt{11})^2} = 4\sqrt{10}$$

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$$BC = \sqrt{14+5} = 2\sqrt{10} \quad BE = BC = \sqrt{10}$$

$$\frac{r}{\sqrt{10}} = \frac{5}{AE} \rightarrow AE = 2\sqrt{10}$$

$$\rightarrow S_{ABE} = \frac{AE \times BE}{2} = \frac{2\sqrt{10} \times \sqrt{10}}{2} = 10$$

۱۰ میانه و خطایز و همودینت

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$$AB = \sqrt{11+9} = 2\sqrt{10}$$

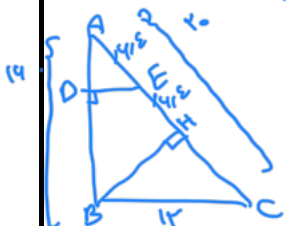
$$(AC)^2 = AD \times AB \rightarrow 9 = AD \times 2\sqrt{10}$$

$$AD = 9/2\sqrt{10}$$

$$BD = 2\sqrt{10} - 9/2\sqrt{10} = 21/2\sqrt{10} \rightarrow \left. \begin{array}{l} DE \perp BC \\ AC \perp BC \end{array} \right\} \rightarrow DE \parallel AC \rightarrow \frac{BE}{BC} = \frac{BD}{AD}$$

$$\frac{BE}{2} = \frac{21/2\sqrt{10}}{2\sqrt{10}} \rightarrow BE = 11$$

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$$AC = \sqrt{14^2 + 12^2} = 20$$

$$BC^2 = CH \times AC \rightarrow 144 = CH \times 20 \rightarrow CH = 7.2$$

$$AE = AH = 9.6 \rightarrow \frac{DE}{12} = \frac{9.6}{20} \rightarrow DE = 9.6$$

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