

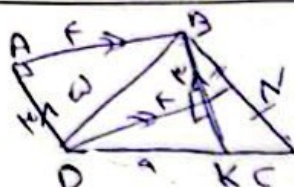
$$DE \parallel BC \rightarrow \triangle ADE \sim \triangle ABC \rightarrow \frac{S_{ADE}}{S_{ABC}} = \left(\frac{AD}{AB}\right)^2 \rightarrow S_{ABC} = \frac{166}{4} S_{ADE}$$

$$\frac{S_{ADE}}{S_{BDE}} = \frac{\frac{1}{2} \cdot EH \cdot \omega}{\frac{1}{2} \cdot EH \cdot \nu} = \frac{\omega}{\nu} \rightarrow S_{BDE} = \frac{\nu}{\omega} S_{ADE}$$

$$S_{BEC} = S_{ABC} - S_{ADE} - S_{BDE} = \frac{166}{4} S_{ADE} - S_{ADE} - \frac{\nu}{\omega} S_{ADE} = \frac{16}{\omega} S_{ADE}$$

$$\frac{S_{BCE}}{S_{BDE}} = \frac{\frac{16}{\omega} S_{ADE}}{\frac{\nu}{\omega} S_{ADE}} = \frac{16}{\nu}$$

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مستطیل ABMD

$$AD = MB = \nu$$

$$AB = DM = \omega$$

$$\hat{D}_1 = \hat{D}_2$$

$$BM = m, KC = \nu$$

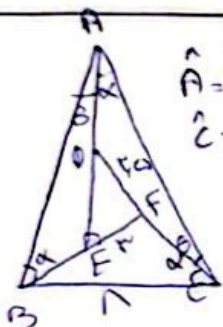
$$MN = \frac{1}{\nu} KC$$

$$\rightarrow MN = \nu$$

بسیارزاده $\hat{D}_1$ است

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$$\hat{A} = \hat{E} = \alpha, \hat{B} = \beta$$

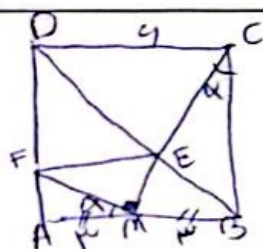
$$\hat{C} = \hat{D} = \alpha, \hat{B} = \beta$$

$$\textcircled{1}, \textcircled{2} \rightarrow \triangle DEF \sim \triangle ABC$$

$$\frac{EF}{AB} = \frac{DF}{AC} = \frac{DE}{BC} \rightarrow \frac{\nu}{AB} = \frac{\omega}{K} \rightarrow AB = \frac{94}{1}$$

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$$\triangle MFE \sim \triangle NDC \rightarrow \frac{ME}{CF} = \frac{BM}{DC} = \frac{BE}{ED} = \frac{\nu}{4} = \frac{1}{\nu}$$

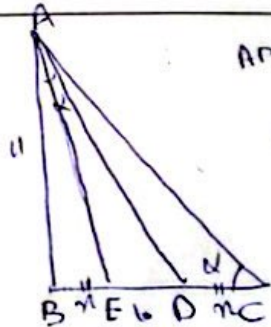
$$CM = BC + BM = \omega \quad CM = \sqrt{EA} = \nu\sqrt{2} \rightarrow ME = CE = \nu\sqrt{2}$$

$$\triangle CMN \sim \triangle AMF \rightarrow \frac{BC}{AM} = \frac{MC}{MF} = \frac{BM}{AF} \rightarrow \frac{\nu\sqrt{2}}{MF} = \frac{\nu}{1}$$

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$$S_{MEF} = \frac{1}{2} \times \frac{\nu\sqrt{2}}{\nu} \times \nu\sqrt{2} = \frac{100}{K}$$



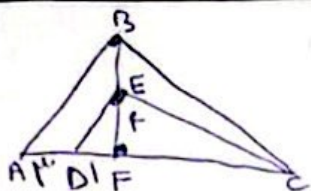
$$AD \cdot BE = AE^2 \rightarrow (11 + x)^2 = 11x^2 \rightarrow AE = \sqrt{11 + 11x}$$

$$\triangle AEC \sim \triangle AED \rightarrow \frac{ED}{AE} = \frac{AE}{EC} = \frac{AD}{AC} \rightarrow AE^2 = ED \cdot EC$$

$$11(1+x) = 10(1+x) \rightarrow x = \frac{1}{1} \rightarrow x = 1$$

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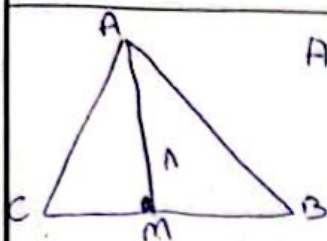
$$EF^2 = DF \cdot FC \rightarrow E^2 = 1 \cdot FC \rightarrow EC = 14$$

$$BF^2 = AF \cdot FC \rightarrow 14 \cdot 4 = 4 \cdot FC \rightarrow BF = 14$$

$$BC^2 = BF^2 + FC^2 \rightarrow BC^2 = 14^2 + 4^2 \rightarrow BC = 15\sqrt{2}$$

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$$AC^2 = 1^2 + 1^2 \rightarrow AC = \sqrt{2}$$

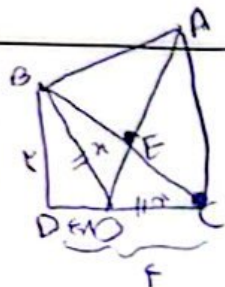
$$C = (1, 0) \quad B = (1, 1) \quad M = (0, 0) \rightarrow A(0, 1)$$

$$D = \left(\frac{0-1}{1}, \frac{1+0}{1} \right) = (-1, 1)$$

$$CD = \sqrt{(0-(-1))^2 + (1-1)^2} = \sqrt{1} = 1$$

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$$BD^2 = OD^2 = BO^2 \rightarrow r^2 + (r \cdot n)^2 = r^2 \rightarrow n = \frac{1}{2}$$

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

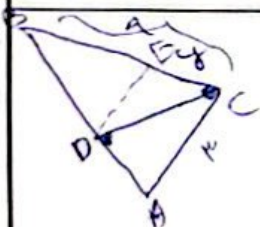
$$OC^2 = EC^2 + EO^2 \rightarrow (r, n)^2 = \left(\frac{\sqrt{5}}{2} \right)^2 + EO^2 \rightarrow EO = \frac{\sqrt{5}}{2}$$

$$EC^2 = AE \cdot EO \rightarrow \left(\frac{\sqrt{5}}{2} \right)^2 = AE \cdot \frac{\sqrt{5}}{2} \rightarrow AE = \frac{\sqrt{5}}{2}$$

$$S_{ACE} = \frac{1}{2} \times \frac{\sqrt{5}}{2} \times \frac{\sqrt{5}}{2} = \frac{5}{8}$$

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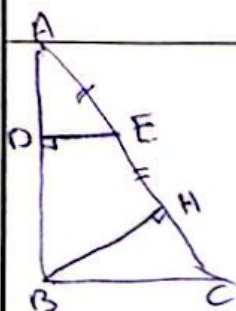
$$AB^2 = AC^2 + BC^2 \rightarrow AB^2 = 9 \rightarrow AB = 3\sqrt{2}$$

$$AC^2 = AD \cdot AB \rightarrow AD = \frac{3\sqrt{2}}{10}$$

$$\frac{AB}{AD} = \frac{BC}{EC} \rightarrow \frac{3\sqrt{2}}{\frac{3\sqrt{2}}{10}} = \frac{4}{\frac{4}{10}} \rightarrow \frac{4}{10} = \frac{4}{10} \rightarrow BF = 9 - \frac{4}{10} = \frac{89}{10}$$

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$$AC = \sqrt{(4)^2 + (4)^2} = \sqrt{32} = 4\sqrt{2}$$

$$AH \cdot AC = AB \cdot BC \rightarrow AH \cdot 4\sqrt{2} = 4 \cdot 4 \rightarrow AH = 4$$

$$AH = \sqrt{4^2 - 4^2} = 0 \rightarrow AE = 4$$

$$ADE \sim ABH \rightarrow \frac{BH}{DE} = \frac{AB}{AE} \rightarrow DE = \frac{BH}{4}$$

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