

$$\frac{S_{ACE}}{S_{BDF}} = \frac{BC}{DE} = \frac{AB}{AD} = \frac{12}{8} = \frac{3}{2}$$

ABMD = مستطیل

$$AD = 8, BA = 6 \rightarrow \text{میانگین} \rightarrow BD = 4$$

$$BDC = 2BDM$$

$$\hat{BQD} \rightarrow \text{مساوی الساقین} \Rightarrow DQ = 4$$

$$N, M \text{ وسط } AC \rightarrow MB = NB = 6$$

$$MN = \frac{1}{2}AC \rightarrow MN = \frac{1}{2} \times 8 = 4$$

$\hat{F} \rightarrow$ زاویه قائمه

$$B - \alpha + \alpha = B$$

$\hat{E} \rightarrow$ زاویه قائمه

$$A - \alpha + \alpha = A$$

$\hat{D}$

$$\alpha + C - \alpha = C$$

$$\left. \begin{array}{l} B - \alpha + \alpha = B \\ A - \alpha + \alpha = A \\ \alpha + C - \alpha = C \end{array} \right\} \Rightarrow \triangle DEF \sim \triangle ABC$$

$$\rightarrow \frac{DF}{BC} = \frac{EF}{AB} = \frac{DE}{AC} = \frac{2}{8} = \frac{1}{4} \Rightarrow AB = 9/2$$

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

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

$$S_{MFE} = \frac{1}{2} ME \cdot MF = \frac{15}{2}$$

$$\tan F = \frac{3}{4} \Rightarrow \tan M = \frac{BC}{MB} = 2 \Rightarrow AF = \frac{5}{2}$$

$$DE \parallel MB \Rightarrow \frac{y}{4} = 2 \Rightarrow y = 8$$

$$\left. \begin{array}{l} A_1 = C_1 \\ E_1 = E_1 \end{array} \right\} \triangle ADE \sim \triangle AEC \rightarrow \frac{AD}{AC} = \frac{AE}{CE} = \frac{ED}{AE} \rightarrow AE^2 = ED \cdot CE$$

$$AE^2 = AB^2 + BE^2 \rightarrow 100 + 16 = 121 + DE^2 \Rightarrow DE = 6$$

$$\rightarrow x^2 - 10x + 16 = 0 \rightarrow (x-2)(x-8) = 0 \Rightarrow \left. \begin{array}{l} x=2 \\ x=8 \end{array} \right\}$$

$$D \hat{F} C \rightarrow EF = DF \times FC \rightarrow E^r = 1 \times FC \rightarrow FC = 17$$

$$A \hat{D} C \rightarrow BC^r = CF \times CA \rightarrow 17 \times (17 + FC) = 17 \times 17 \rightarrow BC = 17$$

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$$AM = 2x \quad HO = x \rightarrow 2x = 1 \rightarrow x = \frac{1}{2}$$

$$AH = \frac{14}{2} \quad MO = \frac{1}{2}$$

$$BOH = 17 + \frac{1}{2} = \frac{34}{2} = \frac{68}{2} = 34$$

$$\frac{BD}{BO} = \frac{1}{2} = \frac{BD}{34} \rightarrow BD = 17$$

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$$\left. \begin{array}{l} OE = OE \\ OB = OC \\ O_1 = O_2 \end{array} \right\} \rightarrow \hat{BOF} \sim \hat{COE} \rightarrow BE = EC$$

$$\xrightarrow{\text{مباشرة}} BC = \sqrt{4+4} = \sqrt{8} = 2\sqrt{2}$$

$$\rightarrow BC = 2EC = 2\sqrt{2}$$

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

$$\left. \begin{array}{l} \hat{D} = \hat{E} = 90^\circ \\ \hat{B}_1 = \hat{C}_1 \end{array} \right\} \rightarrow \hat{BCD} \sim \hat{AEC} \rightarrow \frac{2}{\sqrt{2}} = \frac{E}{AE} = \frac{2\sqrt{2}}{AE} \rightarrow AE = 2\sqrt{2}$$

$$S_{ABE} = \frac{AE \times EC}{2} = \frac{2\sqrt{2} \times \sqrt{2}}{2} = 2$$

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$$\hat{D}_1 = x \quad D_1 + C_1 = 111^\circ$$

$$DC^r + BD^r = BC^r$$

$$DC^r = 111 - \frac{17 \times 9}{11} = \frac{111}{11} \rightarrow DC = \frac{9}{\sqrt{11}}$$

$$\xrightarrow{\text{مباشرة}} BA = 2\sqrt{11}$$

$$BC^r = BD \times BA \rightarrow DB = \frac{111}{2\sqrt{11}} = \frac{17}{\sqrt{11}}$$

$$DE^r + EC^r = DC^r$$

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$$\rightarrow DC^r = CE^r \times CB^r \rightarrow \frac{111}{11} = CE^r \times 11 \rightarrow CE^r = \frac{111}{11 \times 11} = \frac{1}{11} \rightarrow CE = \frac{1}{11}$$

$$BC - CE = EB = \frac{9 - 17}{111}$$

$$A \hat{B} M \rightarrow DE \times AB = BA \times AE$$

$$S = \frac{BH \times 17}{2} = \frac{17 \times 17}{2} \rightarrow BH = 17$$

$$17^r = 2 \times 17^r + (AH)^r \rightarrow 2AE = AH \rightarrow AE = 17$$

$$DE = \frac{9 \times 17 \times 17}{17} = 9 \times 17 = 153$$

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