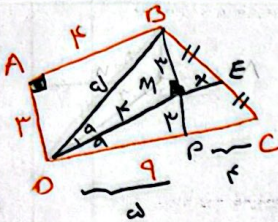


$$ADE \sim ABC \Rightarrow \frac{DE}{BC} = \frac{12a}{24a} = \frac{1}{2}$$

$$\frac{S_{BCE}}{S_{BDE}} = \frac{BC}{DE} = \frac{24a}{12a} = \frac{2}{1} = 2, f$$

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$$DM \parallel AB \Rightarrow \angle ABMD \text{ متوازی الاضلاع}$$

$$BM \parallel AD \Rightarrow \angle BMD \text{ متوازی الاضلاع}$$

$$BDC = 2BDM$$

$$\angle BDM = \angle DMP = x$$

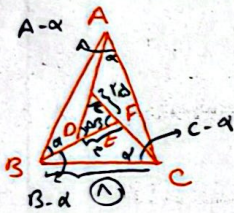
$$DM \parallel AB \Rightarrow BM = MP = 3$$

$$\Rightarrow ME = \frac{1}{2} PC \Rightarrow ME = \frac{1}{2} \times 4 = 2$$

$$\frac{3}{9} = \frac{x}{18} \Rightarrow x = 2$$

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$$ABC \sim DEF$$

$$\frac{1}{4} = \frac{x}{4} \Rightarrow x = 1$$

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$$CD \parallel MB \Rightarrow CDE \sim EMB$$

$$\Rightarrow \frac{CE}{ME} = \frac{CD}{MB} = \frac{CE}{ME} = \frac{4}{4} = 1 \Rightarrow CE = ME$$

$$CM = CE + ME = 2ME + ME = 3ME$$

$$CM^2 = CB^2 + BM^2 \Rightarrow 9ME^2 = 3^2 + 9 = 12 \Rightarrow ME = \sqrt{3}$$

$$\Rightarrow S_{EFM} = \frac{1}{2} \times MF \times ME = \frac{1}{2} \times \frac{3}{2} \times \sqrt{3} = \frac{3\sqrt{3}}{4}$$

$$\Rightarrow \frac{10}{4} = \frac{3\sqrt{3}}{4}$$

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$$BE = DC = x$$

$$BC = BE + ED + DC = x + x + 1 = 2x + 1 \Rightarrow ABE \sim ABD \sim ABC$$

$$\Rightarrow \frac{AE}{AC} = \frac{BE}{BC} = \frac{x}{2x+1}$$

$$\frac{AD}{AC} = \frac{AD}{AD} = 1$$

$$\frac{x+1}{2x+1}$$

$$\frac{x}{2x+1} = \frac{x+1}{2x+1} \Rightarrow (x-2)(x-1) = 0$$

$$\Rightarrow DC = 1, 2$$

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$$EF^2 = DF \times FC \Rightarrow 14 = 1 \times FC \Rightarrow \underline{FC = 14}$$

$$BC^2 = CF \times CA \Rightarrow BC^2 = 14 \times 20 = (14\sqrt{5})^2$$

$$BC = 14\sqrt{5}$$

$$CE = \sqrt{CD^2 + ED^2} = \sqrt{CD^2 + 14}$$

$$AC = AD + DC = 3 + CD$$

$$AB = \sqrt{3^2 + 14^2} = 14\sqrt{5}$$

$$\text{ارتفاع} = 14 \Rightarrow \frac{14}{\sqrt{5}} = \frac{14\sqrt{5}}{5} \Rightarrow \text{ارتفاع} = 14\sqrt{5} \Rightarrow \underline{BC = 14\sqrt{5}}$$

$$m_a = \frac{1}{4} \sqrt{2b^2 + 2c^2 - a^2} \quad \begin{matrix} a = 14\sqrt{5} \\ b = 14\sqrt{5} \\ c = 14 \end{matrix} \Rightarrow m = \frac{1}{4} \sqrt{2(14\sqrt{5})^2 + 2(14)^2 - (14\sqrt{5})^2} = \frac{1}{4} \sqrt{14^2} = \frac{1}{4} \sqrt{196} = \frac{1}{4} \times 14 = \frac{7}{2}$$

$$BD^2 + DC^2 = BC^2 \Rightarrow BC = \sqrt{20}$$

$$OE \perp BC \Rightarrow CE = BE = \sqrt{5}$$

$$\Rightarrow BA^2 = BE \times BC \Rightarrow BA^2 = \sqrt{5} \times \sqrt{20} = BA^2 = 10 \Rightarrow \underline{BA = \sqrt{10}}$$

$$BA^2 = BE^2 + AE^2 \Rightarrow 10 = 5 + AE^2 \Rightarrow AE = \sqrt{5}$$

$$\frac{AC}{BC} = \frac{AE}{BE} = \frac{\sqrt{5}}{\sqrt{5}} = 1 \Rightarrow \frac{AC}{BC} = 1 \Rightarrow \underline{AC = BC}$$

$$AC, BC \rightarrow \text{موازي}$$

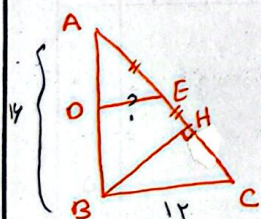
$$DE, BC \rightarrow \text{موازي} \Rightarrow AC \parallel DE$$

$$\Rightarrow BC - CE = BE \Rightarrow 9 - 0.9 = \underline{8.1}$$

$$BC = 9 \Rightarrow BA^2 = 9 + 12 = BA^2 = 21 \Rightarrow \underline{BA = \sqrt{21}}$$

$$CA^2 = AD \times AB \Rightarrow 9 = AD \times \sqrt{21} \Rightarrow AD = \frac{9}{\sqrt{21}}$$

$$CD = \sqrt{9 - \frac{9}{21}} = \sqrt{\frac{180}{21}} = \frac{9}{\sqrt{7}} \Rightarrow (CD)^2 = CE \times BC \Rightarrow \left(\frac{9}{\sqrt{7}}\right)^2 = CE \times 9 \Rightarrow CE = \frac{9}{7}$$



$$AC^2 = AB^2 + BC^2$$

$$\Rightarrow 14^2 + 12^2 = AC^2 \Rightarrow AC = \sqrt{340} = 2\sqrt{85}$$

$$\Rightarrow AB \times BC = AC \times BH$$

$$14 \times 12 = 2\sqrt{85} \times BH \Rightarrow \underline{BH = 9.4}$$

$$AH^2 = AB^2 - BH^2 = 14^2 - (9.4)^2$$

$$\Rightarrow AH = \sqrt{14^2 - 9.4^2} = \underline{11.1}$$

$$AE = \frac{AH}{AB} = \frac{11.1}{14} = \underline{0.79}$$

$$\Rightarrow DE = \frac{DE}{BH} = \frac{AE}{AB} \Rightarrow \frac{DE}{9.4} = \frac{0.79}{14} \Rightarrow DE = \frac{0.79 \times 9.4}{14} = \underline{0.53}$$

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

$$BD^r + DC^r = BC^r \rightarrow BC = r\sqrt{a} = rBE = rEC$$

$$\rightarrow BE = EC = \sqrt{a}$$

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

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

