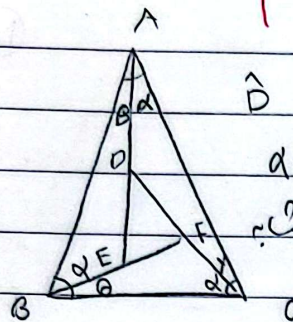


تکلیف شماره ۲۲

دینا جمیلی

یازدهم فصل C



$$\hat{D} = \text{زاویه خارجی} = \alpha + \gamma$$

$$\begin{aligned} \hat{E} &= \alpha + \beta \\ \hat{F} &= \alpha + \theta \end{aligned}$$

$$DE \parallel BC \rightarrow \frac{AD}{AB} = \frac{DE}{BC} = \frac{5}{12} \quad (1)$$

$$\frac{S_{BCE}}{S_{BDE}} = \frac{BC}{DE} = \frac{12}{5} = 2,4 \quad \text{برابر}$$

ارتفاع BCE و BDE از یک نقطه مشترک است.
بنابراین نسبت مساحت ها

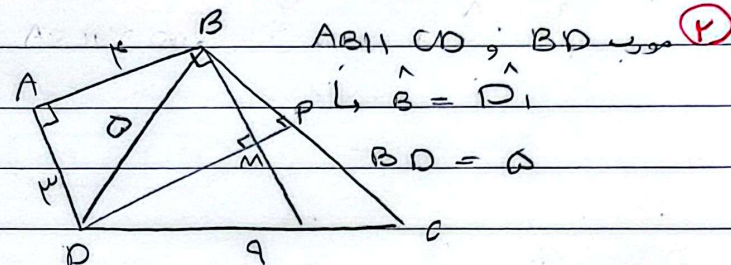
$$ABC \sim DEF \quad \frac{3}{AB} = \frac{2,5}{1} \quad \boxed{AB = 9,4}$$

$$\begin{aligned} AFM &\sim MBC \\ \frac{AF}{3} &= \frac{3}{4} \rightarrow AF = 1,5 \end{aligned}$$

$$\begin{aligned} DCE &\sim MBE \rightarrow \text{نسبت شیب} = k = \frac{1}{3} \\ \frac{EB}{DE} &= \frac{1}{3} \\ \frac{AF}{DF} &= \frac{1,5}{4,5} = \frac{1}{3} \\ EF &= 9 \end{aligned}$$

$$FE \parallel AB$$

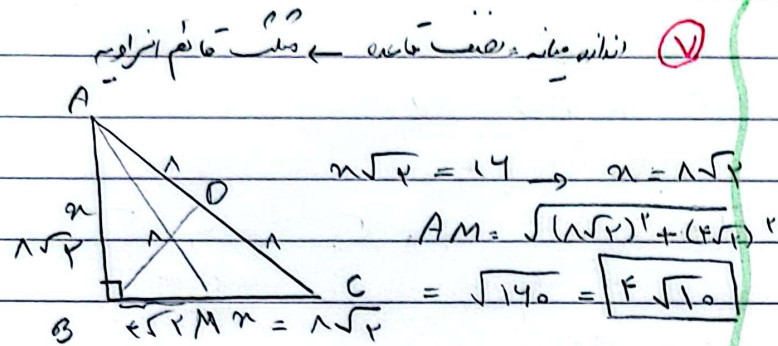
$$\begin{aligned} \frac{FE}{14} &= \frac{3}{4} \\ MH &= 1,5 \end{aligned}$$



$$\begin{aligned} ABD &\cong BMD \\ \hat{B} = \hat{D} = \hat{DBE} = \hat{ADB} & \quad M = 90^\circ \\ DM &\perp BE \\ \hat{D}_1 = \hat{D}_2 & \quad \hat{M} = 90^\circ \\ DMB &\cong DME \quad DE = 2 \\ ME = BM = 3 & \quad EC = 4 \end{aligned}$$

$$\begin{aligned} EC \parallel MP &\rightarrow BP = PC \\ ME = MB & \quad \boxed{MP = 2} \quad \text{s.a.m} \\ \frac{MP}{EC} &= \frac{BP}{BC} = \frac{BM}{BE} = 1,2 \end{aligned}$$

$$S_{FME} = \frac{1}{2} \times \frac{9}{2} \times \frac{3}{2} = \frac{27}{4}$$



$BE = DC = n$ (۵)

$AE = \sqrt{11^2 + n^2} = \sqrt{n^2 + 121}$

$AEC \sim ACD$

$\frac{AE}{ED} = \frac{EC}{AE} \rightarrow AE^2 = ED \times EC$

$BD = DC = n$ $DD = 1 - n$ $BD = 1$ (۸)
 ضعیف‌تر $1 + 14 + n^2 - 1n = n^2$

$1 \rightarrow n = 1, 5$

$BC = \sqrt{1^2 + 14^2} = 1\sqrt{5}$

BOC قائم الزاویه $\rightarrow OE$ ضلع $\rightarrow$

$BE = EC = \sqrt{5}$

ACO قائم الزاویه $\rightarrow OE = y$
 $EC^2 = OE \times EA$

$1 \rightarrow EA = 5$

$OE^2 = OE \times OA \rightarrow (\frac{5}{2})^2 = y \times y \times \frac{5}{2}$

$1 \rightarrow y = \frac{\sqrt{5}}{2} \rightarrow AE = \frac{5}{2} = \frac{y}{\frac{\sqrt{5}}{2}} = 1\sqrt{5}$

$S_{ABE} = \frac{1}{2} \times 1\sqrt{5} \times \sqrt{5} = (5)$

s.a.m

$11 + n^2 = 10(n + 10)$

$11 + n^2 = 10n + 100$

$n^2 - 10n + 11 = 0$

$Ln - 3)(Ln - 4) = 0$
 $\begin{cases} n = 3 \\ n = 4 \end{cases}$

$DF \times EC = EF^2$ (۹)

$1 \times FC = 14 \rightarrow FC = 14$

$BC^2 = 14 \times 1$

$BC = 1\sqrt{5}$

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

(9)

$$AB = 3\sqrt{10}$$

$$AC^2 = AD \times AB$$

$$9 = 3\sqrt{10} \times AD \quad AD = \frac{3}{\sqrt{10}}$$

$$BD = 3\sqrt{10} - \frac{3}{\sqrt{10}} = \frac{29\sqrt{10}}{10}$$

$$\left. \begin{array}{l} DE \perp BC \\ AC \perp BC \end{array} \right\} DE \parallel AC \xrightarrow{\text{قوسو}}$$

$$\frac{BE}{BC} = \frac{BD}{AB} \quad \frac{BE}{9} = \frac{\frac{29\sqrt{10}}{10}}{3\sqrt{10}} =$$

$$\frac{9}{10} \rightarrow \boxed{BE = 1,1}$$

$$\text{مسعود} \rightarrow AC = 2$$

(10)

$$BC^2 = CH \times AC \quad 12^2 = 2 \times CH$$

$$CH = 7,2 \quad AH = 2 - 7,2 = 1,2$$

$$AE = EH = 4,2$$

$$DE \parallel BC \xrightarrow{\text{قوسو}} \frac{AE}{AC} = \frac{DE}{BC}$$

$$\frac{4,2}{2} = \frac{DE}{1,2} \rightarrow \boxed{DE = 2,4}$$

s.a.m