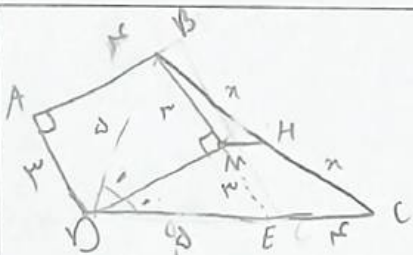


Bc 11 DE

$$\frac{AD}{AB} = \frac{DE}{BC} \rightarrow \frac{2}{12} = \frac{DE}{BC}$$

$$\frac{S_{ACE}}{S_{ADE}} = \frac{\frac{1}{2} \times BC \times h}{\frac{1}{2} \times DE \times h} = \left[\frac{14}{2} \right] \checkmark$$

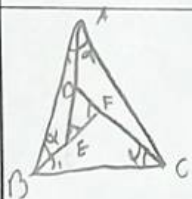
(Y)



$$\rho_{ME}^A \approx \rho_{MB}^A$$

$$\frac{MH}{F} = \frac{F}{4} = \frac{1}{4} \rightarrow \underline{MH = F} \quad \checkmark$$

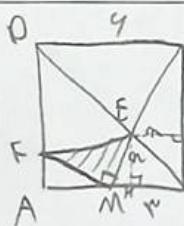
②



$$\left. \begin{array}{l} F = \alpha + \beta_1 = \beta \\ E = \alpha + A_1 = A \end{array} \right\} \longrightarrow D_{EF}^{\Delta} \sim A_{\beta_1}^{\Delta} \rightarrow \frac{DE}{AC} = \frac{DF}{\beta_1 C} = \frac{EF}{A_1 B}$$

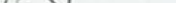
$$\frac{r, \omega}{\lambda} = \frac{r}{AB} \rightarrow \underline{AB = 9,4} \quad \checkmark$$

(7)



$$\beta_c^A m \sim A \hat{F}^m \rightarrow \frac{AF}{m\beta} = \frac{mF}{mC} = \frac{A_m}{\beta C} \rightarrow \frac{AF}{w} = \frac{w}{y} \rightarrow AF = \frac{w}{y}$$

9. Beispiel $MF^y = AF^y + PF^y = \frac{1}{r} + q = \frac{fD}{f} \Rightarrow MF = \frac{r\sqrt{D}}{f}$

A  B $\sin C = \frac{h}{r} = \frac{4-n}{4} \rightarrow 4n = 14 - 4n \rightarrow 8n = 14 \rightarrow n = \frac{7}{4}, m_4 = 1$

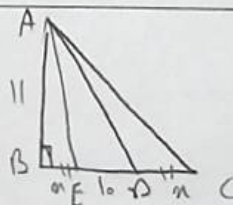
$$M_E^Y = 1^2 \cdot v^2 = \Delta \rightarrow M_E = \sqrt{\Delta} \quad \boxed{f_{FM}^0 E = \sqrt{\Delta} \times \frac{m\sqrt{\Delta}}{Y} \times \frac{1}{Y} = \frac{1\Delta}{Y} = m v \Delta} \quad \checkmark$$

Y

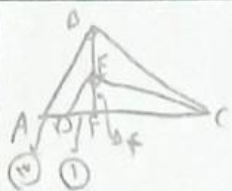
$$A \hat{E} D \sim A \hat{C} E \rightarrow \frac{ED}{AE} = \frac{AD}{AC} = \frac{AE}{EC} \rightarrow AE^2 = (10+n)(10) = 100 + 10n$$

$$AB^Y + BE^Y = AE^Y \rightarrow 121 + 9^Y = 10n + 100$$

$$n^2 - 10n + 21 = 0 \rightarrow (n-7)(n-3) \rightarrow \begin{matrix} n=7 \\ n=3 \end{matrix}$$



②



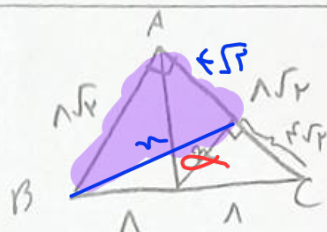
$$EF^2 = DF \cdot FC \rightarrow 14 = 1 \times FC \rightarrow FC = 14$$

$$BC^2 = CF \cdot AC \rightarrow 14 \times 20 = BC^2$$

$$BC = \sqrt{14 \times 20} = \sqrt{280} = 14\sqrt{2} \quad \checkmark$$

(2)

8



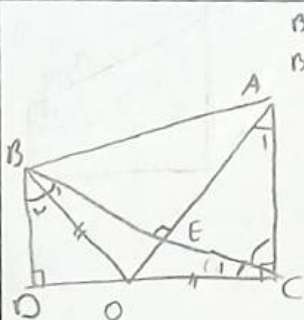
سایه دارد و در سقف درست است پس قائم الزامی است .

$$9^2 + 12^2 = 15^2 \rightarrow n = \sqrt{15} = \sqrt{15} \quad \checkmark$$

$$n^2 = (15\sqrt{2})^2 + (15\sqrt{2})^2 \rightarrow n = 15\sqrt{10} \quad \checkmark$$

(1)

✓



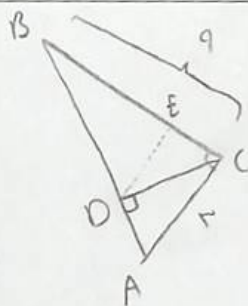
$$B_1 = C_1, B_1 + C_1 + B_2 = 90^\circ \left\{ \begin{array}{l} BC = r^2 + r^2 = \sqrt{2} = 2\sqrt{2} \rightarrow EC = \sqrt{2} = EB \\ \frac{C_1}{B_1} + \frac{C_2}{B_2} + \frac{A_1}{B_1 + C_1} = 90^\circ \rightarrow \triangle AEC \sim \triangle BDC \rightarrow \frac{AC}{BC} = \frac{AE}{CD} = \frac{EC}{BD} \end{array} \right.$$

$$\frac{A}{2\sqrt{2}} = \frac{AE}{1} = \frac{\sqrt{2}}{2} \rightarrow AE = \sqrt{2}$$

$$S_{ABE} = \frac{AE \times BE}{2} = \frac{\sqrt{2} \times \sqrt{2}}{2} = 1 \quad \checkmark$$

(2)

✓



$$AB = 3\sqrt{10} \quad \left\{ \begin{array}{l} CD \times AB = AC \times BC \\ CD \times 3\sqrt{10} = 3 \times 9 \rightarrow CD = \frac{9}{\sqrt{10}} \end{array} \right.$$

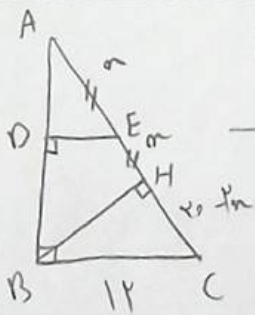
$$(AC)^2 = AD \times AB \rightarrow 9 = AD \times 3\sqrt{10} \rightarrow AD = \frac{3}{\sqrt{10}}$$

$$(BC)^2 = BD \times AB \rightarrow 11 = BD \times 3\sqrt{10} \rightarrow BD = \frac{11}{3\sqrt{10}}$$

$$\text{وگرنه: } \frac{BD}{AD} = \frac{BE}{CE} \rightarrow \frac{\frac{11}{3\sqrt{10}}}{\frac{3}{\sqrt{10}}} = \frac{n}{9-n} \rightarrow 9 = \frac{n}{9-n} \rightarrow 11 - 9n = n \rightarrow 11 = 10n \rightarrow n = 1.1 \quad \checkmark$$

(2)

✓



$$AB = 14 \quad \left\{ \begin{array}{l} \text{طبق} \\ \text{میانبر} \end{array} \right. \quad AC = 20$$

$$BC^2 = (CH)(AC) \quad 14^2 = (20 - x)(20) \quad 14^2 = 400 - 20x \rightarrow 400 - 20x = 196 \rightarrow 20x = 204 \rightarrow x = 10.2$$

$$\text{وگرنه: } \frac{DE}{BC} = \frac{AE}{AC} \sim \frac{DE}{14} = \frac{4.4}{20} \sim DE = 3.08 \quad \checkmark$$

(2)

✓