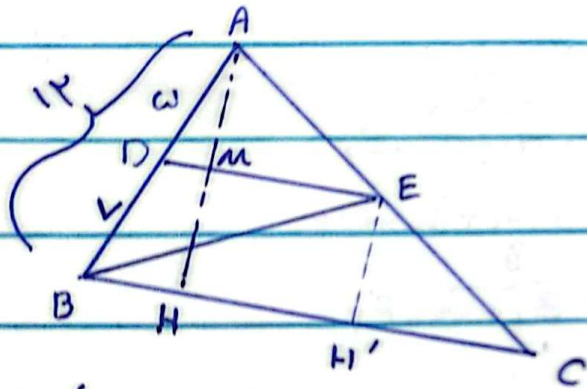


پریا حسینی

-1



$$\frac{S_{\triangle ADE}}{S_{\triangle ABC}} = \left(\frac{d}{12}\right)^2 = \frac{2d}{144}$$

$$S_{\triangle ABC} = 144 \text{ cm}^2 = \frac{AH \times BC}{2} \rightarrow AH \times BC = 288 \text{ cm}^2$$

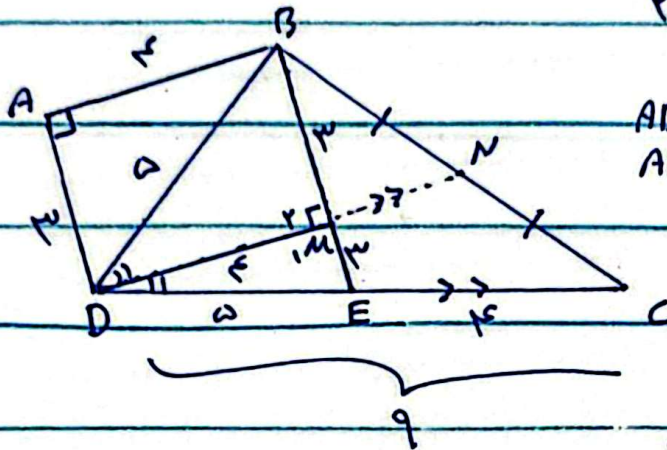
$$S_{\triangle ADE} = 2d \text{ cm}^2$$

$$EH' = MH = \frac{d}{12} AH$$

$$S_{\triangle BCE} = \frac{EH' \times BC}{2} = \frac{\frac{d}{12} AH \times BC}{2} = \frac{\frac{d}{12} \times 288 \text{ cm}^2}{2} = 12d \text{ cm}^2$$

$$S_{\triangle BDM} = S_{\triangle ABC} - S_{\triangle ADE} - S_{\triangle BEC} = 144 \text{ cm}^2 - 2d \text{ cm}^2 - 12d \text{ cm}^2 = 3d \text{ cm}^2$$

$$\frac{S_{\triangle BCE}}{S_{\triangle BDM}} = \frac{12d \text{ cm}^2}{3d \text{ cm}^2} = \frac{12}{3} = 4$$



$$\angle BDM = \angle BDC \rightarrow \angle BDM = \angle MDC$$

$$\left. \begin{array}{l} AD \parallel BM \\ AB \parallel DM \\ \hat{A} = 90^\circ \end{array} \right\} \text{ABDM} \rightarrow \text{chữ nhật}$$

$$\left. \begin{array}{l} \angle BDM = \angle MDC \\ DM = DM \\ \hat{M}_1 = \hat{M}_2 = 90^\circ \end{array} \right\} \begin{array}{l} \triangle BDM \cong \triangle DME \\ BM = ME = 4 \end{array}$$

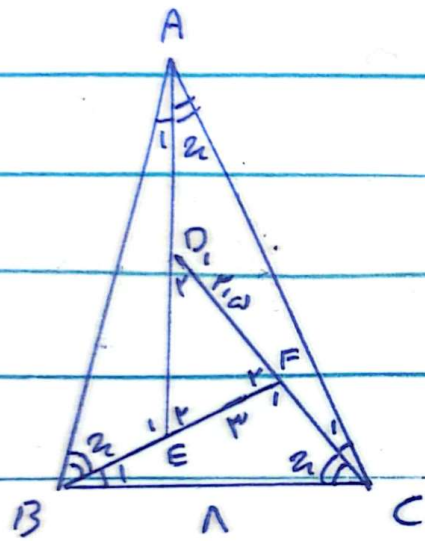
$$\left. \begin{array}{l} N \rightarrow BC \text{ trung điểm} \\ BM = ME \end{array} \right\} \text{đường trung tuyến} \rightarrow MN \parallel EC \rightarrow \frac{MN}{EC} = \frac{BM}{BE} \rightarrow 4$$

$$BD^2 = AD^2 + AB^2 = 9 + 16 = 25 \rightarrow BD = 5 = DE$$

$$EC = 9 - DE = 9 - 5 = 4$$

$$\frac{4}{9} = \frac{MN}{4} \rightarrow \boxed{MN = \frac{16}{9}}$$

سریانی

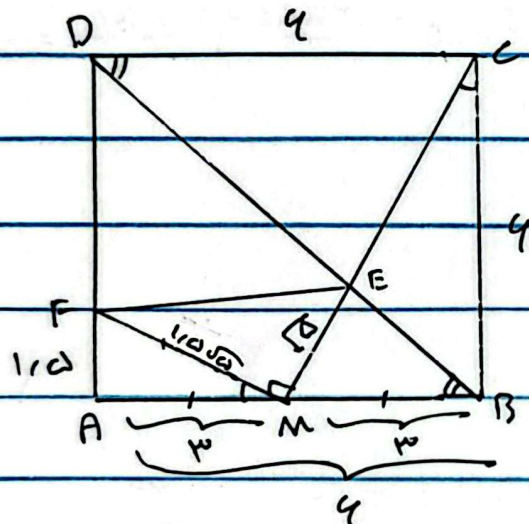


$$\begin{aligned} 180^\circ - (A_1 + \alpha) &= E_1 = 180^\circ - E_r \rightarrow \hat{A}_1 + \alpha = E_r \\ 180^\circ - (C_1 + \alpha) &= D_1 = 180^\circ - D_r \rightarrow \hat{C}_1 + \alpha = D_r \\ 180^\circ - (B_1 + \alpha) &= F_1 = 180^\circ - F_r \rightarrow \hat{B}_1 + \alpha = F_r \end{aligned}$$

$$\left. \begin{aligned} \hat{B} &= \hat{F}_r \\ \hat{C} &= \hat{D}_r \\ \hat{A} &= \hat{E}_r \end{aligned} \right\} \triangle ABC \sim \triangle DFE \rightarrow \frac{AB}{EF} = \frac{AC}{ED} = \frac{BC}{DF}$$

$$\frac{AB}{EF} = \frac{BC}{DF} \rightarrow \frac{AB}{\mu} = \frac{\Lambda}{\mu_{10}}$$

$$AB = \frac{\mu \times \Lambda}{\mu_{10}} = \boxed{9.4}$$



$$\left. \begin{array}{l} \hat{BCM} = \hat{AMF} \\ \hat{A} = \hat{B} = 90^\circ \end{array} \right\} \underbrace{\triangle AFM \sim \triangle MBC}_{ii}$$

$$\frac{AM}{BC} = \frac{AF}{MB} = \frac{FM}{MC}$$

$$\frac{3}{4} = \frac{AF}{3} \rightarrow AF = \frac{9}{4} = \frac{3}{4} = 1, \text{ ا}$$

$$FM^2 = AF^2 + AM^2 \rightarrow FM^2 = \frac{9}{4} + \frac{9}{4} = \frac{18}{4} \rightarrow FM = \frac{3\sqrt{2}}{2} = 1,414$$

$$\left. \begin{array}{l} \text{مقابلتي (ج) } \hat{MEB} = \hat{DEC} \\ DC \parallel MB \rightarrow \hat{CDB} = \hat{DBA} \end{array} \right\} \text{ii} \rightarrow \triangle DCE \sim \triangle MBE \rightarrow \frac{MB}{DC} = \frac{BE}{DE} = \frac{ME}{EC} = \frac{1}{3}$$

$$MC^2 = MB^2 + BC^2 \rightarrow 9 + 3^2 = MC^2 \rightarrow MC = 3\sqrt{2}$$

$$\left. \begin{array}{l} ME \rightarrow x \\ EC \rightarrow 3x \end{array} \right\} \rightarrow MC = 3\sqrt{2}$$

$$3x = 3\sqrt{2} \rightarrow x = \sqrt{2} \rightarrow x = ME = \sqrt{2}$$

$$S_{MFE} = \frac{ME \times FM}{2} = \frac{\sqrt{2} \times 1,414\sqrt{2}}{2} = \frac{1,414}{2} = 0,707$$

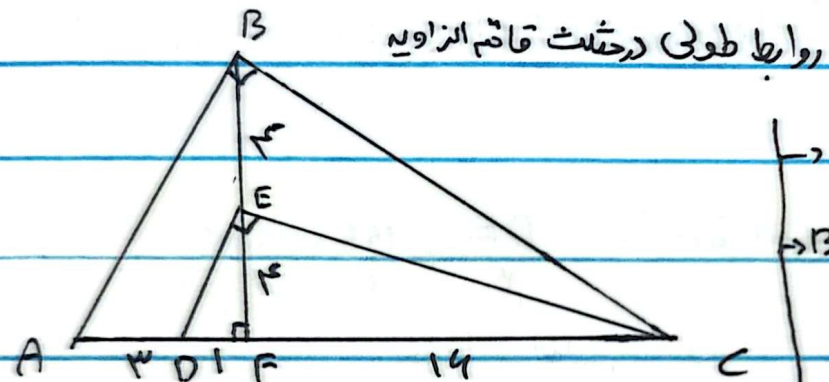


$$AE^Y = 2x^Y + 11^Y \rightarrow AE = \sqrt{2x^Y + 11^Y}$$

$$u^2 + |v| = 100 + |0u| \rightarrow u^2 - |0u| + |v| = 0 \rightarrow (u - v)(u + v) = 0 \rightarrow \begin{cases} u = v \\ u = -v \end{cases}$$

پیرا امینی

4



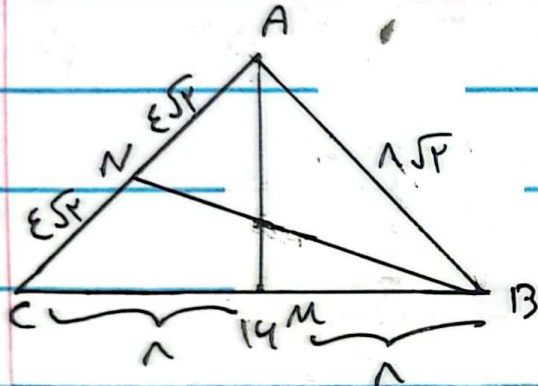
$$\rightarrow EF^2 = DF \times FC \rightarrow 14 = 1 \times FC \rightarrow FC = 14$$

$$\rightarrow BF^2 = AF \times FC \rightarrow 5 \times 14 = BF^2 = 45 \rightarrow BF = 1$$

$$BE = BF - EF = 1 - 5 = 4$$

$$\rightarrow BC^2 = FC \times AC = 14 \times 14 = 320$$

$$BC = \sqrt{320} = 1\sqrt{20}$$



اندازه میانه وارد بر قاعده در مثلث متساوی الساقین برابر طرک ارتفاع است.

$$AC^2 = CM^2 + AM^2 \rightarrow AC = \sqrt{12^2 + 14^2} = 10\sqrt{2}$$

$$AB^2 = MB^2 + AM^2 \rightarrow AB = \sqrt{14^2 + 14^2} = 10\sqrt{2}$$

$$AM = \frac{14}{1} = 14$$

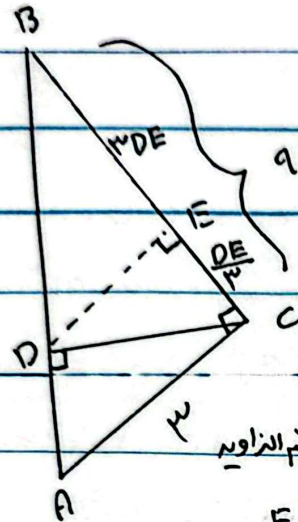
$$AB^2 + BC^2 = 2(BN^2 + AN^2) \rightarrow 12^2 + 2 \cdot 14^2 = 2(BN^2 + 32) \rightarrow$$

$$312 = 2BN^2 + 96 \rightarrow 2BN^2 = 312 - 96 \rightarrow 2BN^2 = 216 \rightarrow BN^2 = 108$$

$$BN = 6\sqrt{3}$$

لـ ٦ اجـ ١

9



$$DE \perp BC, AC \perp BC \rightarrow AC \parallel DE$$

$$\text{تقسيم الناحية} \rightarrow \frac{DE}{3} = \frac{BE}{9} \rightarrow \frac{3DE}{9} = \frac{BE}{9}$$

$$\rightarrow 3DE = BE$$

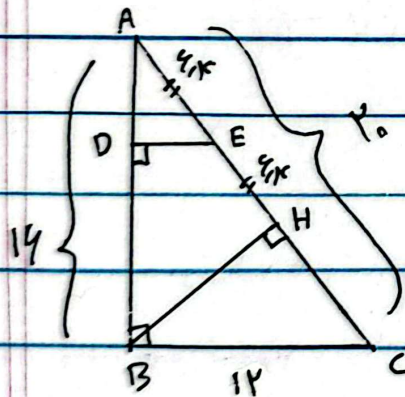
$$\text{روابط طولی و مثلث قائم الزاویه} \rightarrow DE^2 = BE \times EC = 3DE \times EC \rightarrow$$

$$EC = \frac{DE^2}{3DE} = \frac{DE}{3}$$

$$BC = BE + EC = 3DE + \frac{DE}{3} = \frac{9DE}{3} + \frac{DE}{3} = \frac{10DE}{3} = 9 \rightarrow DE = \frac{9}{\frac{10}{3}} = \frac{27}{10}$$

$$BE = 3 \times DE \quad DE = \frac{27}{10} \rightarrow BE = 3 \times \frac{27}{10} = \frac{81}{10}$$

10



$$AC^2 = BC^2 + AB^2 \quad 18^2 + 14^2 = 20^2 \rightarrow AC = 20$$

$$\text{روابط طولی} \rightarrow AB^2 = AH \times AC = 14^2 \rightarrow AH = \frac{14^2}{20} = \frac{49}{5}$$

$$AE = EH = AH \rightarrow AE = \frac{49}{5} = EH$$

$$\text{تقسيم الناحية} \rightarrow \frac{DE}{18} = \frac{AE}{AC} \rightarrow \frac{DE}{18} = \frac{\frac{49}{5}}{20} \rightarrow DE = \frac{147}{100}$$