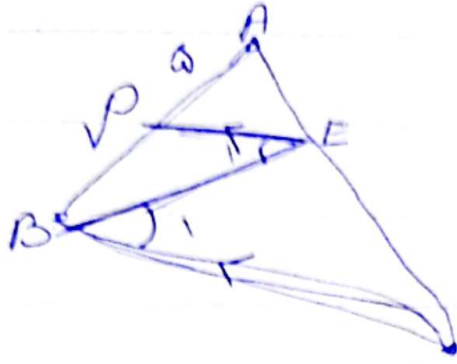




$$BC \parallel DE \Rightarrow \frac{DE}{BC} = \frac{d}{a} = \frac{d}{12} \quad (1)$$

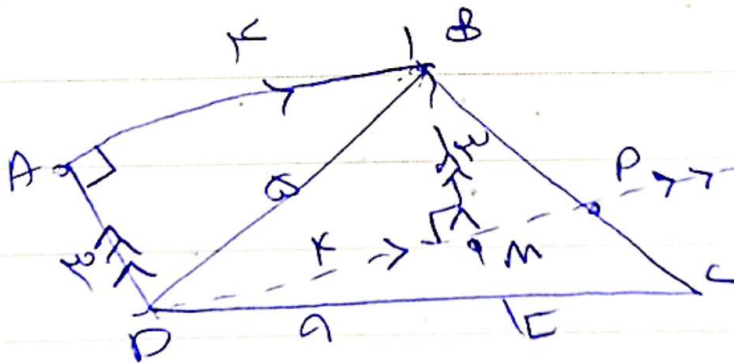
$$\angle BCE = ? \quad \angle BDE$$

$$BC \parallel DE \Rightarrow \hat{E}_1 = \hat{B}_1 \rightarrow \angle BCE = EB \times CB \times \frac{1}{r} \times \sin \theta$$

$$\angle BDE = DE \times BE \times \frac{1}{r} \times \sin \theta$$

$$\frac{DE}{BC} = \frac{d}{12} \Rightarrow BE \times \frac{d}{12} = PE$$

$$\frac{BE \times CB \times \frac{1}{r} \times \sin \theta}{\frac{d}{12} \times BE \times BE \times \frac{1}{r} \times \sin \theta} = \frac{12}{a} = \boxed{12}$$



$$AB \parallel DC \Rightarrow \hat{B} = \hat{D} \quad (2)$$

$$\rightarrow B + D = D$$

$$BD = a$$

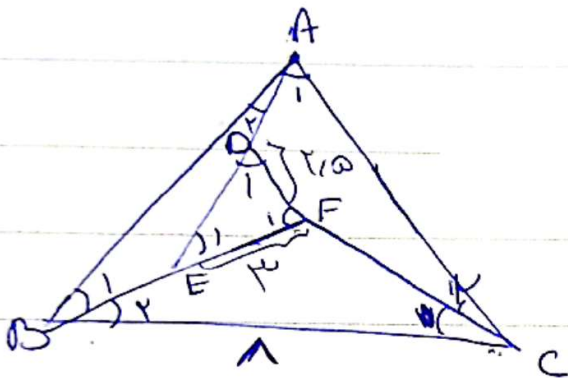
$$BD = \text{diagonal} \quad \hat{B} = \hat{D} = 4 \hat{A} \hat{O} \hat{B} = \hat{D} \hat{B} \hat{E} \rightarrow \triangle ABD \cong \triangle BMD \Rightarrow \hat{M} = 90^\circ$$

DM

$$\hat{D}_1 = \hat{D}_2 \quad \hat{M} = 90^\circ \quad \triangle DMB \cong \triangle DME \Rightarrow DE = DB, EC = EM, ME = DM$$

$$EC \parallel MD \Rightarrow \begin{cases} BP = PC \\ ME = MB \end{cases}$$

$$\Rightarrow \frac{MP}{EC} = \frac{BP}{BC} \cdot \frac{BM}{BE} = \frac{1}{4} \Rightarrow MD = \frac{1}{4} \times 2 = \frac{1}{2}$$



$$\hat{B}_1 \quad \hat{A}_1 \quad \hat{C}_1$$

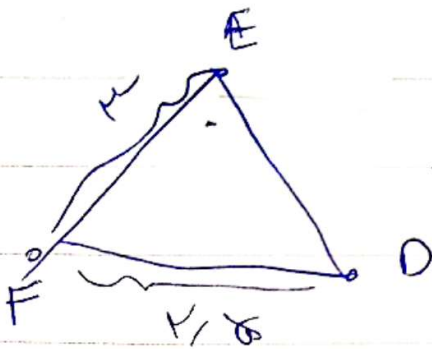
$$\hat{A}_1 B_1 F = \hat{C}_1 A_1 E = \hat{B}_1 C_1 D \quad (*)$$

$$DF = \frac{1}{2} \quad EF = \frac{1}{2}$$

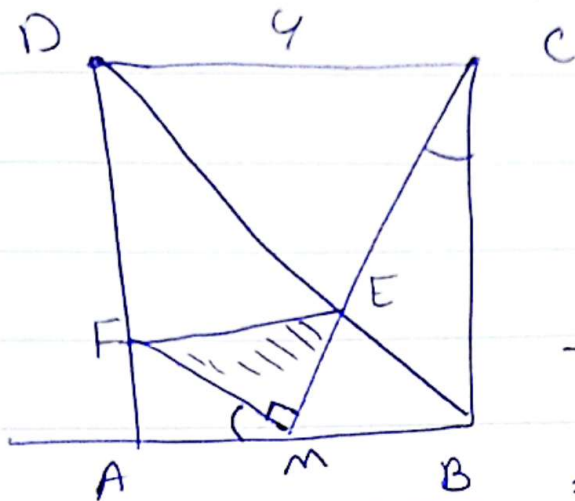
$$\begin{aligned} \hat{D}_1 &= \hat{A}_1 + \hat{C}_1 \rightarrow \text{angle} \\ \hat{E}_1 &= \hat{A}_1 + \hat{B}_1 \rightarrow \text{angle} \\ \hat{F}_1 &= \hat{C}_1 + \hat{B}_1 \end{aligned}$$

$$\begin{aligned} \hat{C}_1 + \hat{B}_1 + \hat{A}_1 &= \hat{D}_1 = \hat{C}_1 + \hat{C}_1 \\ \hat{E}_1 &= \hat{A}_1 + \hat{A}_1 \\ \hat{F}_1 &= \hat{B}_1 + \hat{B}_1 \end{aligned}$$

منه $\triangle EDF \sim \triangle ABC$ و $ED = \frac{1}{2} AB$



$$\frac{AB}{BC} = \frac{EF}{FD} = \frac{1/2 AB}{1/2 BC} = \frac{1/2}{1/2} = 1$$



$$BM = AM = \frac{3}{2}$$

$$BM \parallel DC \Rightarrow \triangle BME \sim \triangle DEC$$

$$\Rightarrow \frac{ME}{CE} = \frac{BM}{DC} = \frac{\frac{3}{2}}{4} = \frac{3}{8}$$

$$\Rightarrow BC^2 = CM^2 = BC^2 + BM^2$$

$$\Rightarrow 4^2 + 3^2 = EC^2 \Rightarrow CM = \frac{5}{2} \Rightarrow ME = \frac{3}{2} \Rightarrow CE = \frac{5}{2}$$

$$\triangle AMF \sim \triangle BMC \Rightarrow \frac{AM}{BC} = \frac{MF}{MC} \Rightarrow \frac{3}{4} = \frac{MF}{\frac{5}{2}\sqrt{5}}$$

$$MF = \frac{3}{4}\sqrt{5}$$

$$S_{\triangle FME} = \frac{1}{2} \times ME \times MF = \frac{1}{2} (\frac{3}{2} \times \frac{3}{4}\sqrt{5})$$

$$= \frac{9}{8} = \boxed{\frac{9}{8}\sqrt{5}}$$

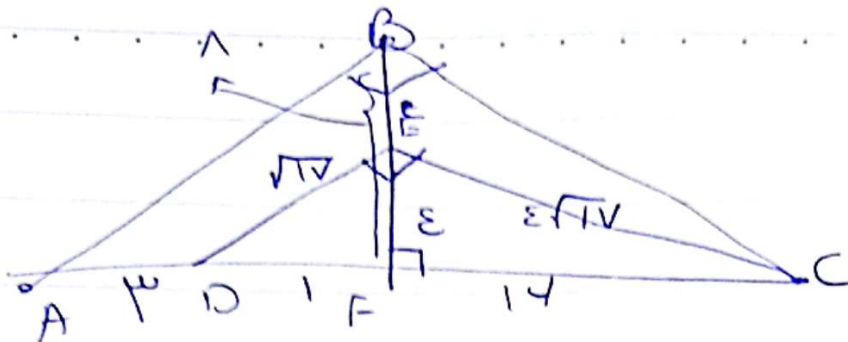
$$ABE \Rightarrow AE^2 = AB^2 + BE^2 \Rightarrow 11^2 + n^2 \Rightarrow AE = \sqrt{121+n^2} \quad (a)$$

$$\triangle AEC \sim \triangle ACD \Rightarrow \frac{AE}{ED} = \frac{EC}{AC} \Rightarrow AE^2 = ED \times EC$$

$$\Rightarrow 121 + n^2 = 100 + 10n \Rightarrow$$

$$n^2 - 10n + 21 = 0$$

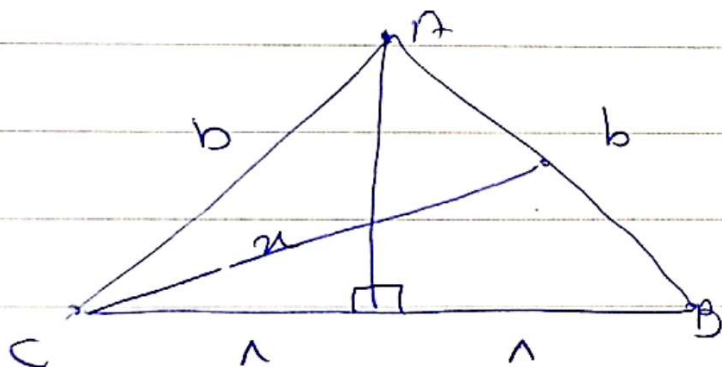
$$(n-4)(n-7) = 0 \Rightarrow \boxed{n = \frac{11 \pm \sqrt{5}}{2}}$$



$$\left. \begin{array}{l} ED \leq \sqrt{1+14} = \sqrt{15} \\ EF^P = 0 \text{ } F \times F_c \Rightarrow F_c \leq 14 \end{array} \right\} \Rightarrow IV \neq EC^P \leq K_{19} \Rightarrow EC \leq \sqrt{15}$$

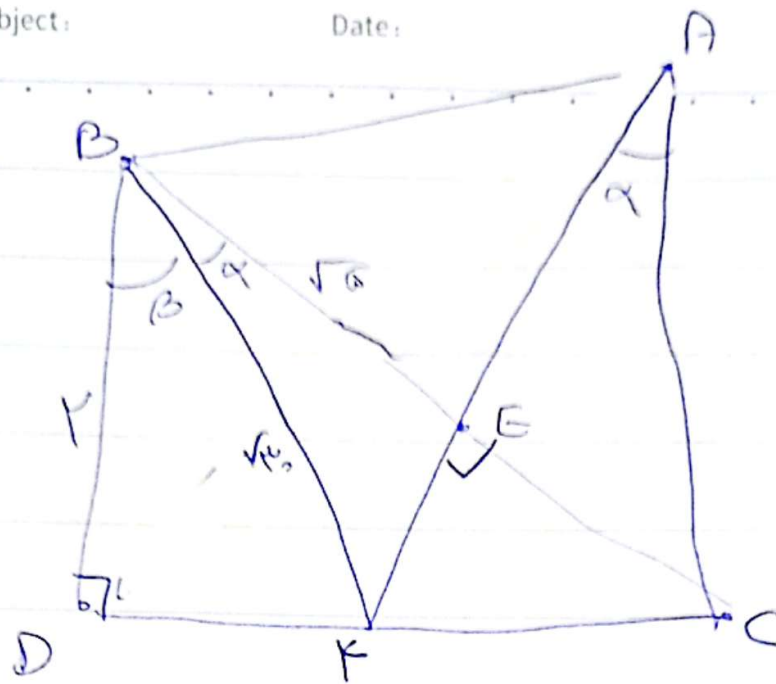
$$BF^Y = \kappa_X(4) \Rightarrow BF \leq \sqrt{4\varepsilon} \wedge$$

$$Bc^T = A^T + 14^T = 44 \Rightarrow \underline{Bc \leq \sqrt{a}}$$



$$b^F + b^r = 14^r \Rightarrow b^r = 14^r \Rightarrow b = \sqrt{14^r} = b, \sqrt{r}$$

$$\sqrt{(1\sqrt{P})^P + (2\sqrt{P})^P} = 1^P + 2^P = \sqrt{14} = \boxed{2\sqrt{10}}$$

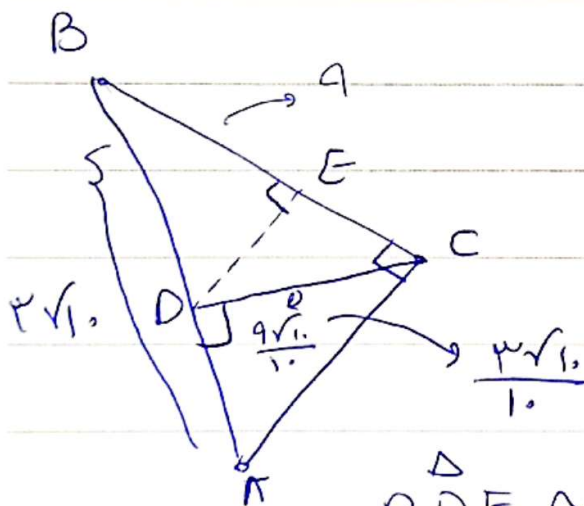


$$BC = \sqrt{14+14} + \sqrt{10} = \sqrt{28} + \sqrt{10}$$

$$BE \perp EC = \sqrt{10}$$

$$\frac{1}{\sqrt{10}} = \frac{1}{AE} \rightarrow AE = \sqrt{10} \Rightarrow \Delta ABE \sim \frac{AE \times CE}{1}$$

$$= \frac{1 \times \sqrt{10}}{1} = \textcircled{a}$$



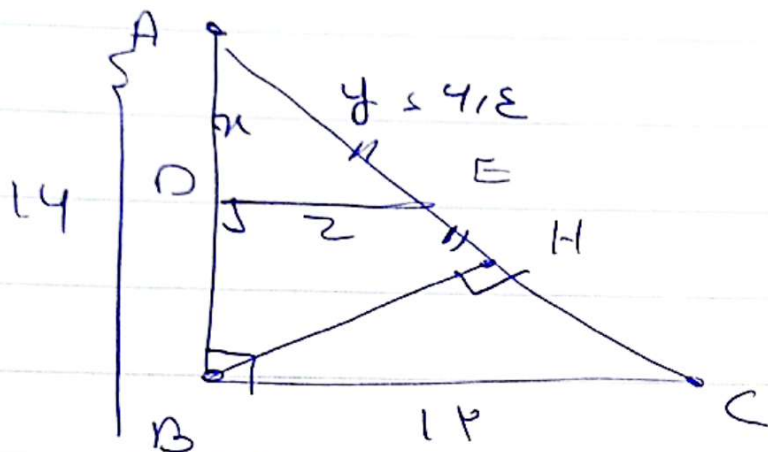
$$\Delta ADC \sim \Delta ABC \rightarrow \frac{AC}{AB} = \frac{AD}{AC} = \frac{DC}{BD}$$

$$\frac{1}{\sqrt{10}} = \frac{AD}{1} = \frac{DC}{9}$$

$$\Delta BDE \sim \Delta ABC \rightarrow \frac{ED}{AC} = \frac{EB}{BD} = \frac{BD}{BA}$$

$$\rightarrow \frac{ED}{1} = \frac{EB}{9} = \frac{1 - AD}{\sqrt{10}} \rightarrow EB \times \sqrt{10} = 9(1 - \frac{1}{\sqrt{10}})$$

$$EB \times \sqrt{10} = 9 \times \frac{1 \times \sqrt{10}}{10} \Rightarrow \boxed{EB = 1/1}$$



$$\triangle ABC \sim \triangle ADE \rightarrow \frac{AD}{AB} = \frac{AE}{AC} = \frac{ED}{CB} \rightarrow \frac{x}{14-x} = \frac{2}{11} \Rightarrow \frac{11x}{14-x} = 2$$

$$\triangle ABC \sim \triangle BHE \rightarrow \frac{BH}{AB} = \frac{HE}{BC} = \frac{BE}{AC} \rightarrow \frac{BH}{14} = \frac{11}{17} \Rightarrow BH = \frac{154}{17}$$

$$\rightarrow 11(17 - 11) = 11 \times 11 \rightarrow 11 - 11 = 11$$

$$\rightarrow \frac{4/5}{17} = \frac{2}{11} \Rightarrow 2 = \frac{4/5 \times 17}{17} \Rightarrow \boxed{17/17}$$