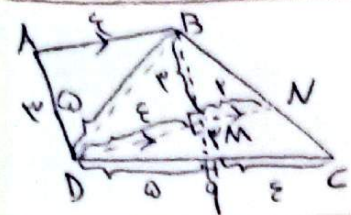


$$\frac{AD}{AB} = \frac{DE}{BC} \Rightarrow \frac{5}{12} = \frac{5}{BC} = \frac{5}{12}$$

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

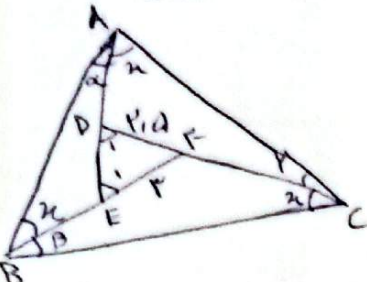


(۲)

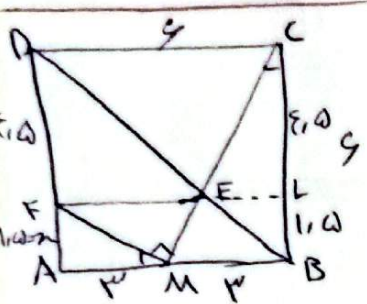
۲. به کمک شکل دو تالس می توانیم یکی مثلث BCH است و بعد به کمک تالس و داده های سوال می توان قاطعه M و N را حساب کرد. - هر برابر ۲ است.

$$\hat{A}BF = \hat{C}AE = \hat{BCD} = x$$

$$E_1 \Rightarrow E_1 = x + x = \hat{A} \quad D_1 \Rightarrow BD_1 = x + y = \hat{C} \quad \text{از اینجا}$$



$$\triangle DEF \sim \triangle ABC \Rightarrow \frac{DF}{BC} = \frac{EF}{AB} \Rightarrow \frac{2,5}{12} = \frac{3}{AB} \Rightarrow AB = 9,6$$



$$\frac{CB}{MA} = \frac{MB}{FA} \Rightarrow \frac{4}{3} = \frac{3}{x} \Rightarrow x = 1,6$$

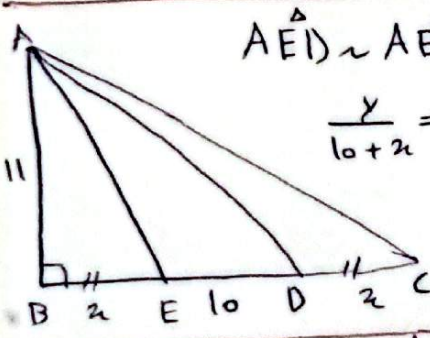
$$\frac{DF}{DA} = \frac{FE}{AB} \Rightarrow \frac{4,5}{6} = \frac{FE}{6} \Rightarrow FE = 4,5$$

$$\frac{CL}{LB} = \frac{CE}{EM} \Rightarrow \frac{4,5}{11,5} = \frac{3}{EM} \Rightarrow EM = CE$$

$$3,6 + 9 = 4,5 \Rightarrow \sqrt{4,5} = 3\sqrt{5} \quad 3\sqrt{5} = CE + ME \Rightarrow EM = 3\sqrt{5}$$

$$\Rightarrow ME = \frac{3\sqrt{5}}{2} \quad \frac{4,5}{2} + x^2 = \frac{11}{2} \Rightarrow x^2 = \frac{3,5}{2} = \frac{7}{4} = 1,75$$

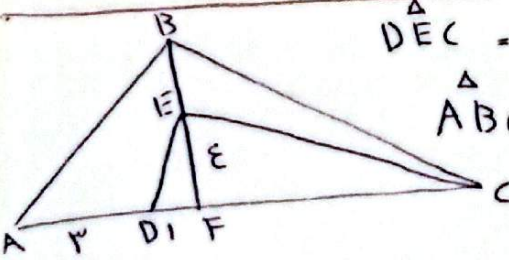
$$\Rightarrow S_{FEM} = \frac{3 \times \frac{3\sqrt{5}}{2}}{2} = \frac{9\sqrt{5}}{4}$$



$$\triangle AED \sim \triangle AEC$$

$$\frac{x}{10+x} = \frac{10}{x} \Rightarrow x^2 = 100 + 10x \xrightarrow{\text{نسبت غرض}} x^2 + 10x = 100 + 10x$$

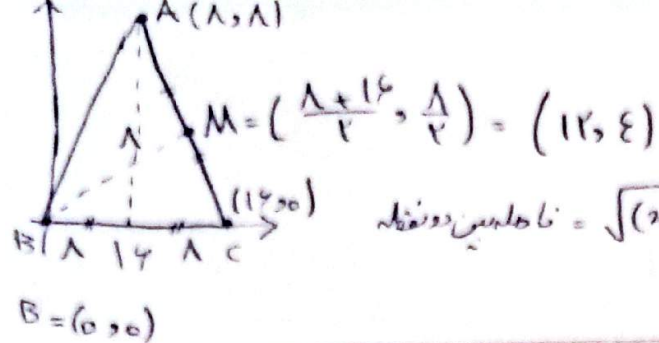
$$\Rightarrow x^2 - 10x + 10 = 0 \rightarrow x = 5 \rightarrow x = 5$$



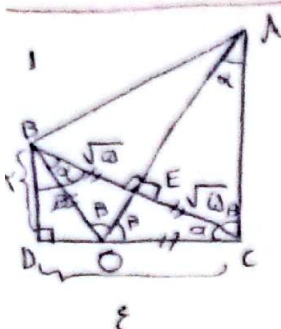
$$\triangle DEC = EF^2 = DF \times FC \Rightarrow 8^2 = 1 \times FC \Rightarrow FC = 64$$

$$\triangle ABC = BF^2 = AF \times FC \Rightarrow BF^2 = 8 \times 64 \Rightarrow BF = 16$$

$$\triangle BFC: BC^2 = BF^2 + FC^2 \Rightarrow BC^2 = 16^2 + 64^2 \Rightarrow BC = 16\sqrt{5}$$



$$AB = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2} = \sqrt{1^2 + 1^2} = \sqrt{2} = \sqrt{2}$$

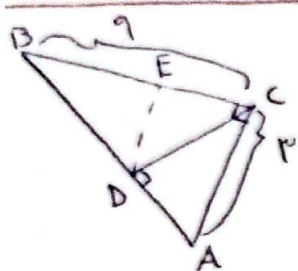


$$\triangle CEO \cong \triangle BEO \Rightarrow BE = CE$$

$$BC = 1 + 1 = 2 \Rightarrow BC = \sqrt{2}$$

$$\triangle BCD \sim \triangle ABE \Rightarrow \frac{BD}{DC} = \frac{BE}{AE} \Rightarrow \frac{1}{1} = \frac{\sqrt{2}}{AE} \Rightarrow AE = \sqrt{2}$$

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

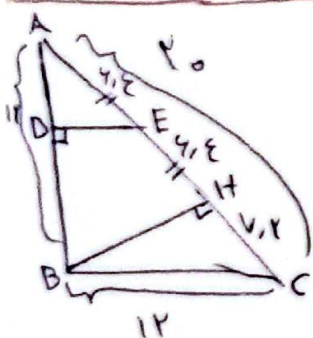


$$BA^2 = CB^2 + CA^2 \Rightarrow BA^2 = 1 + 1 = 2 \Rightarrow BA = \sqrt{2}$$

$$\frac{BA \times DC}{2} = \frac{BC \times CA}{2} \Rightarrow \sqrt{2} \times DC = 1 \times 1 \Rightarrow DC = \frac{1}{\sqrt{2}}$$

$$DC^2 = CE \times CB \Rightarrow \left(\frac{1}{\sqrt{2}} \right)^2 = CE \times 1 \Rightarrow CE = \frac{1}{2}$$

$$BE = BC - CE = 1 - \frac{1}{2} = \frac{1}{2}$$



$$BC^2 = AC \times AB \Rightarrow 1 \times 1 = AC \times \sqrt{2} \Rightarrow AC = \frac{1}{\sqrt{2}}$$

$$AH = \sqrt{2} - \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}$$

$$AC = \sqrt{1^2 + 1^2} = \sqrt{2}$$

$$\frac{AD}{AB} = \frac{DE}{BC} \Rightarrow \frac{1, 1}{\sqrt{2}} = \frac{DE}{1} \Rightarrow DE = \frac{1, 1}{\sqrt{2}}$$