

$$AE = x \Rightarrow ED = 2x$$

$$\begin{aligned} \hat{A}_1 &= \hat{C}_1 \quad \text{خطوط متوازية} \\ \hat{F}_1 &= \hat{F}_2 \end{aligned} \left\} \begin{aligned} (i) & \Rightarrow BCF \sim AEF \\ \text{النسبة} & K = \frac{2x}{x} = 2 \end{aligned} \right.$$

$$BE = \sqrt{2^2 + 1^2} x = \sqrt{5} x \Rightarrow EF = \frac{1}{2} \times \sqrt{5} x = \frac{\sqrt{5}}{2} x$$

$$AC = 2\sqrt{2} x \Rightarrow AF = \frac{1}{2} \times 2\sqrt{2} x = \sqrt{2} x$$

$$\frac{EF}{AF} = \frac{\frac{\sqrt{5}}{2} x}{\sqrt{2} x} = \boxed{\frac{\sqrt{5}}{2\sqrt{2}}}$$

$$\begin{aligned} \hat{A} &= \hat{A} \\ \hat{AED} &= \hat{ACB} \end{aligned} \left\} (i) \Rightarrow ADE \sim ABC \quad \frac{AE}{AC} = \frac{AD}{AB} = \frac{DE}{BC}$$

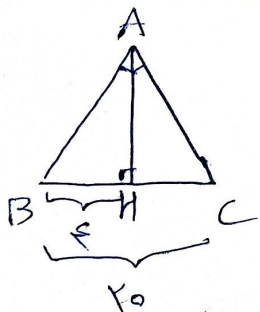
$$\Rightarrow \frac{x}{2\sqrt{2}} = \frac{2}{2\sqrt{2}+1} \Rightarrow 2 = x + \sqrt{2}x \Rightarrow x^2 + x - 2 = 0 \Rightarrow x = \boxed{1} \quad \text{أو } x = -2$$

$$\begin{aligned} \hat{H}_1 &= \hat{H}_2 \\ \hat{DEH} &= \hat{HFC} \end{aligned} \left\} (i) \Rightarrow DEH \sim CFH \quad \frac{x}{y} = \frac{DF}{CF} = \frac{2}{3}$$

$$\Rightarrow DE = 2a \quad CF = 3a \quad BC = 2 + 3a$$

$$\Rightarrow \frac{2a}{2+3a} = \frac{x}{2\sqrt{2}+1} = \frac{x}{2\sqrt{2}} = \frac{1}{2} \Rightarrow 4a = 2 + 3a \Rightarrow a = 2 \Rightarrow x = \frac{2}{2} = 1$$

$$BC = 2 + 3a = 2 + 3 \times \frac{2}{2} = 2 + 3 = 5 \Rightarrow \boxed{5}$$

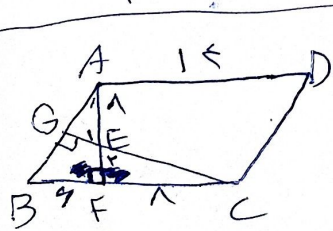


$$AB^2 = BH \times BC = 1 \times 2 = 2 \Rightarrow AB = \sqrt{2}$$

$$\Rightarrow AB = \sqrt{2} = \sqrt{2}$$

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

$$\Rightarrow AC = \sqrt{2} = \sqrt{2} \quad \frac{AB}{AC} = \frac{\sqrt{2}}{\sqrt{2}} = \boxed{1}$$

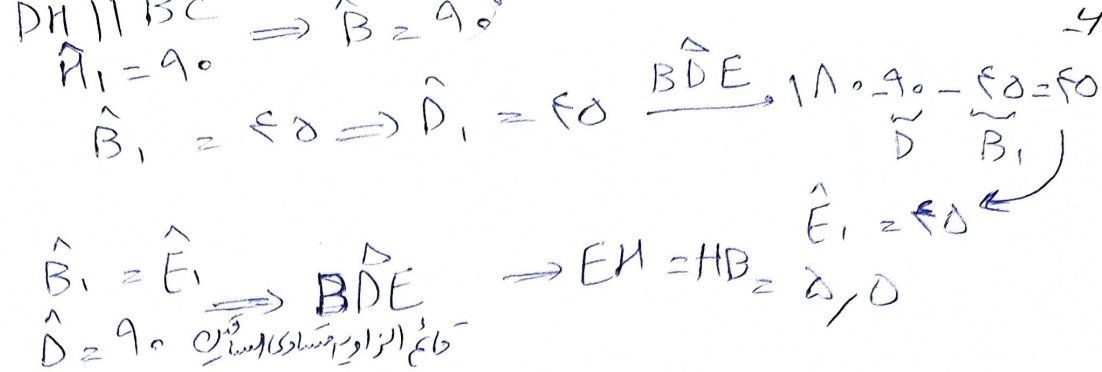


$$\begin{aligned} \hat{E}_1 &= \hat{E}_2 \\ \hat{G}_1 &= \hat{G}_2 = 90^\circ \end{aligned} \left\} (i) \Rightarrow AEG \sim CEF$$

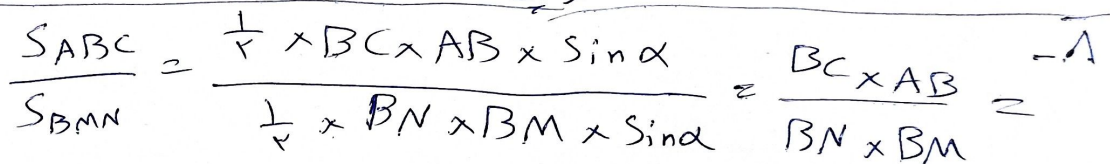
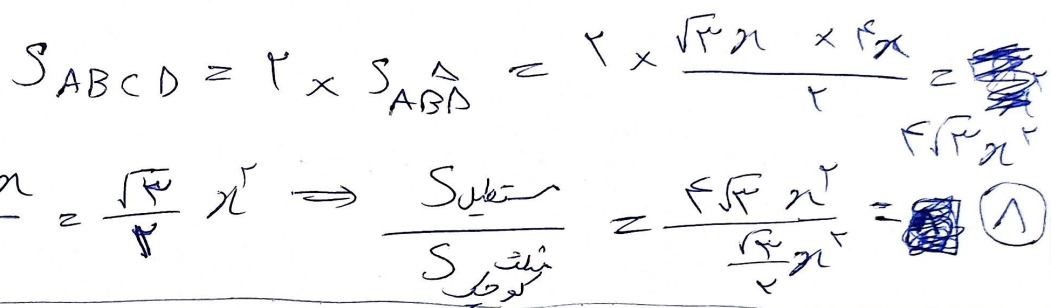
$$\Rightarrow \hat{A}_1 = \hat{C}_1 \Rightarrow \hat{A}_1 = \hat{C}_1 \left\} (i) \Rightarrow ABF \sim CEF \quad \hat{F}_1 = \hat{F}_2 = 90^\circ$$

$$\frac{AF}{CF} = \frac{BF}{EF} = \frac{AB}{CE} \Rightarrow \frac{1+EF}{2} = \frac{2}{EF} \Rightarrow 1 \cdot EF + EF^2 = 2 \Rightarrow EF^2 + EF - 2 = 0 \Rightarrow EF = \boxed{1} \quad \text{أو } EF = -2$$

$$\Rightarrow EF^2 + EF - 2 = 0 \Rightarrow EF = \boxed{1} \Rightarrow AF = AE + EF = 1 + 1 = \boxed{2}$$



$$AH'^T = X \times \tilde{X} = \tilde{X}^T \Rightarrow AH' = \sqrt{\tilde{X}}$$



$$\alpha + \beta + \gamma \geq 1 \wedge \dots$$

$$\hat{B}EF \sim \hat{CDF} \Rightarrow \frac{EF}{DF} = \frac{BE}{CF} = \frac{BF}{CD} = \frac{1}{x}$$

$$\Rightarrow CD = \text{BF} \quad CF = CD - BF = \text{BF} - BF = 0$$

$$D \quad C \quad CD^T + CF^T = 14 \Rightarrow (EBF)^T + (YBF)^T \Rightarrow CF = YBF$$

$$S = \left(\frac{14}{5}\right)^2 = \frac{196}{25} \Rightarrow BD \Rightarrow AD = DC \quad FD \parallel EM$$

$$\text{Since } BD \Rightarrow AD = DC \quad FD \parallel EM$$

$$EM \parallel GD \Rightarrow \frac{EM}{GD} = \frac{CM}{CD} = \frac{1}{2} \Rightarrow \frac{FD}{EM} = \frac{AD}{AM} = \frac{r_n}{\frac{r_n}{2}} = \frac{1}{\frac{1}{2}} = 2$$

$$\frac{BG}{GD} = 3 \Rightarrow \frac{EM}{BN} = \frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$$

$$\Rightarrow \frac{FD}{BD} = \frac{FD}{EM} \times \frac{EM}{BD} = \frac{5}{4} \times \frac{1}{4} = \frac{1}{9} \Rightarrow \frac{BD}{FD} = 9$$