

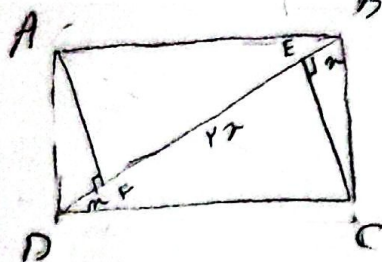
$$DF \parallel BC \rightarrow \hat{B} = \hat{F} = 90^\circ \Rightarrow \frac{9}{y} = \frac{ED}{D_1} = \frac{D_1}{D_2} = \frac{D_1}{B_1} = \frac{B_1}{B_2}$$

$$ED = x = DB \rightarrow \hat{E} = \hat{B}_1 = \hat{E} \Rightarrow EF = FD \quad \left. \begin{array}{l} EF = BF = \frac{11}{4} = 2.75 \\ BF = FD \end{array} \right\}$$

$$DF \parallel BC \xrightarrow{\text{المثل}} \frac{AF}{AB} = \frac{AD}{AC} = \frac{ED}{BC} \rightarrow 11x + EE = 2, 2x + y, 2$$

$$\boxed{AF = 9.4}$$

$$x = \frac{14.2}{2.2} = 6.4$$



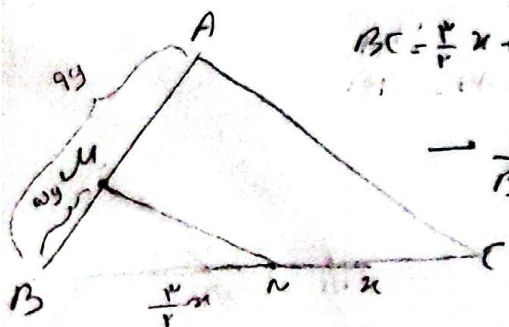
$$S_{AFB} = \frac{EB \times AF}{2} = 15$$

$$S_{AFD} = \frac{DF \times AF}{2} = 5$$

$$S_{EDC} = \frac{DE \times CE}{2} = 15$$

$$S_{BEC} = \frac{EB \times CE}{2} = 5$$

$$\frac{S_{ABCD}}{S_{AFD}} = \frac{15 + 5 + 15 + 5}{5} = 11$$



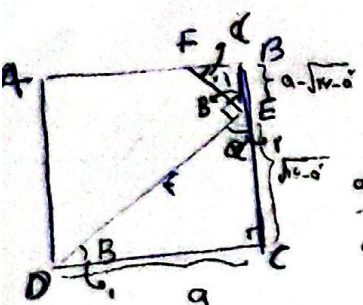
$$BC = \frac{1}{2}x + x = \frac{3}{2}x$$

$$\frac{S_{ABC}}{S_{MBN}} = \frac{S_{ABN} \times BN \times BM}{S_{MBN} \times BM \times BN} = 1$$

$$\rightarrow \frac{AB}{BM} = 1 \times \frac{1}{2} = \frac{1}{2} \rightarrow AB = 4y, BM = 2y$$

$$AB - BM = 2y = AM$$

$$\frac{BM}{AM} = \frac{2y}{2y} = 1$$



$$\hat{B} = \hat{C} = 90^\circ$$

$$\hat{A} + \hat{B} = 90^\circ$$

$$\hat{B} + \hat{E} = 90^\circ$$

$$\hat{E} + \hat{D}_1 = 90^\circ$$

$$\hat{A} + \hat{B} = 90^\circ$$

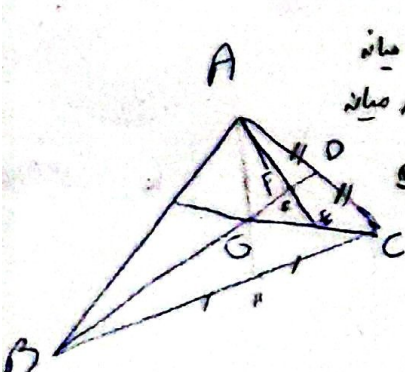
$$\left. \begin{array}{l} \hat{E}_1 = \hat{A} \\ \hat{D}_1 = \hat{B} \end{array} \right\} \Delta \sim \Delta$$

$$FDE \sim ECD \rightarrow \frac{F}{1} = \frac{DE}{BE} = \frac{EE}{FB}$$

$$\sqrt{14 - a^2} = EC \quad EB = a - \sqrt{14 - a^2}$$

$$a = Fa - \sqrt{14 - a^2} \rightarrow 2a = \sqrt{14 - a^2}$$

$$2a^2 = 14 \times 14 - 14a^2 \rightarrow 20a^2 = 14^2 \rightarrow a^2 = \frac{14^2}{20}$$

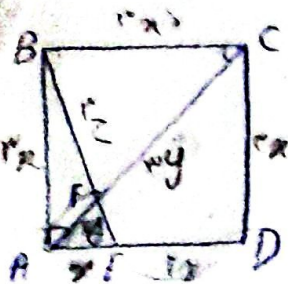


$$\text{میان } BD \rightarrow AD = DC \quad \text{میان } AH \rightarrow GE = EC \quad \text{میان } AE \rightarrow$$

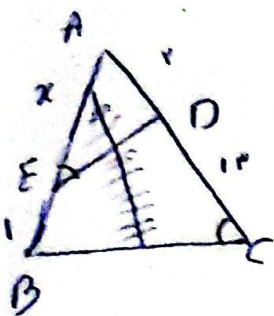
$$\Delta AGC \left\{ \begin{array}{l} GD \text{ میان} \\ AE \text{ میان} \end{array} \right\} \rightarrow \frac{f}{1} = \frac{FD}{x} = \frac{GF}{2x}$$

$$\frac{AC}{2} \rightarrow BG = 9x$$

$$\frac{BD}{FD} = \frac{4x + 4x + x}{x} = 9$$



$$\frac{x}{m} = \frac{BE}{AC} = \frac{EZ}{FZ} = \frac{\sqrt{10}x^2}{\sqrt{10}x^2} = \frac{x\sqrt{10}}{x\sqrt{2}} = \frac{\sqrt{5}}{1}$$



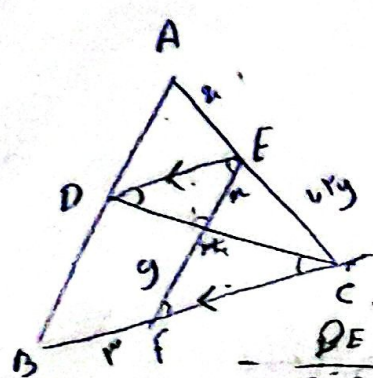
$$\left. \begin{array}{l} \hat{A} = \hat{A} \\ \hat{E} = \hat{C} \end{array} \right\} \rightarrow \triangle AED \sim \triangle ABC$$

$$\hat{A}ED = \hat{A}CB$$

$$\text{نسبت نشاء: } \frac{AD}{AB} = \frac{ED}{BC} = \frac{AE}{AC} \rightarrow \frac{x}{1+x} = \frac{x}{1} \rightarrow x = x + x^2 \rightarrow x^2 + x - 1 = 0$$

$$(x+4)(x-5) = 0$$

$$\hat{A}ED = \hat{A}CB \rightarrow x = 5$$



$$xy = 0.2 \rightarrow x = \frac{1}{5}y \rightarrow x \cdot \frac{y}{y} = \frac{1}{5}$$

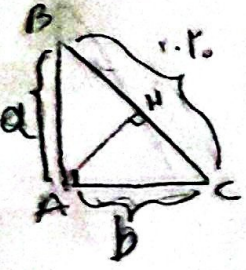
$$\left. \begin{array}{l} \hat{E} = \hat{F} \\ \hat{D} = \hat{C} \\ \hat{H} = \hat{H} \end{array} \right\} \rightarrow \triangle DEH \sim \triangle FHC$$

$$\rightarrow \frac{EH}{FH} = \frac{DH}{HC} = \frac{DE}{FC}$$

$$\frac{DE}{FC} = \frac{x}{y} = \frac{1}{5} = \frac{1}{10} \rightarrow DE = \frac{1}{10}FC$$

$$DE \parallel BC \rightarrow \frac{AE}{BE} = \frac{AD}{DB} = \frac{DE}{BC} \rightarrow \left(\frac{1}{5} \right) = \frac{1}{10} = \frac{x}{1+x} \rightarrow x = 1 \text{ k}$$

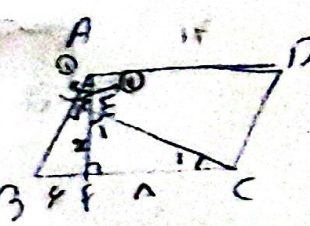
$$\frac{DE}{BC} = \frac{1}{10} \rightarrow \frac{DE}{1} = \frac{1}{10} \rightarrow DE = \frac{1}{10} \rightarrow FC = 1.1 \rightarrow x = 1.1$$



$$\hat{A}C = \hat{C}H + \hat{C}B \rightarrow HC = \frac{b^2}{1} = \frac{1}{1} \rightarrow b^2 = 1 \rightarrow b = 1$$

$$\hat{A}B = \hat{B}H + \hat{B}C \rightarrow BA = \frac{a^2}{1} = \frac{1}{1} \rightarrow a^2 = 1 \rightarrow a = 1$$

$$\frac{AB}{AC} = \frac{a}{b} = \frac{1}{1} = \frac{1}{1}$$



$$\left. \begin{array}{l} \hat{E} + \hat{C} = 90 \\ \hat{E} + \hat{A} = 90 \\ \hat{E} = \hat{E} \end{array} \right\} \rightarrow \hat{C} = \hat{A}$$

$$\left. \begin{array}{l} \hat{C} = \hat{A} \\ \hat{F} = \hat{F} \end{array} \right\} \rightarrow \triangle ABF \sim \triangle EFC$$

$$\frac{AF}{BF} = \frac{EF}{FC} = \frac{AE}{EC}$$

$$\frac{x}{1-x} = \frac{1}{1+x} \rightarrow x(1+x) = 1-x \rightarrow x^2 + x = 1-x \rightarrow x^2 + 2x - 1 = 0$$

$$(1) x = 1 \rightarrow x = 1 \rightarrow (x+1)(x-1) = 0$$

$$\Rightarrow (1) EF = 1, AE = 1 \Rightarrow AF = 1.2$$