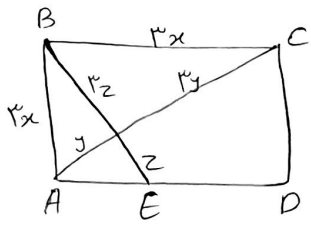


لیلاً ابراهیمی ازدهم دقت C



$$ADC = \sqrt{4x^2 + 4x^2} = 2\sqrt{2}x = AC$$

$$ABE = \sqrt{4x^2 + x^2} = \sqrt{5}x = BE$$

$$\triangle AFE \sim \triangle CFB \Rightarrow \frac{AF}{EF} = \frac{FE}{FB} = \frac{AE}{BC} = \frac{x}{r} = \frac{1}{r}$$

$$EF = z \rightarrow z + rz = \sqrt{5}x \Rightarrow z = \frac{\sqrt{5}}{r}x$$

$$AF = y \Rightarrow y + ry = \sqrt{5}x$$

$$y = \frac{\sqrt{5}}{r}x$$

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

$$\triangle AED \sim \triangle ACB \left\{ \begin{array}{l} \hat{A} = \hat{A} \\ \hat{E} = \hat{C} \end{array} \right. \Rightarrow \frac{AE}{AC} = \frac{ED}{BC} = \frac{AD}{AB}$$

$$\frac{x}{10} = \frac{r}{x+1} \Rightarrow x^2 + x = r \rightarrow x^2 + x - r = 0 \rightarrow (x+4)(x-3) = 0$$

$$\boxed{\begin{array}{l} x = -4 \times \text{غیر ممکن} \\ x = 3 \times \text{ممكن} \end{array}}$$

$$ry = 0x \rightarrow y = 0/r \cdot x$$

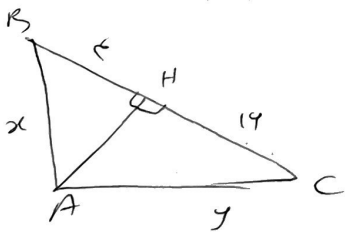
$$\triangle ABC : DE \parallel BC \Rightarrow \frac{AE}{AC} = \frac{DE}{BC} \Rightarrow \frac{x}{x+1/r} = \frac{DE}{r+1/r}$$

$$\frac{x}{x+1/r(0/r \cdot x)} = \frac{DE}{r+1/r} \Rightarrow \frac{x}{x+1/r} = \frac{DE}{r+1/r} \Rightarrow rDE = rFC \text{ (1)}$$

$$DE \parallel FC \Rightarrow \frac{DE}{FC} = \frac{EH}{HF} \Rightarrow \frac{DE}{FC} = \frac{x}{y} = \frac{r}{0} \Rightarrow rDE = rFC \text{ (2)}$$

$$\text{(1), (2)} \Rightarrow r+FC = r(\frac{r}{0})FC \Rightarrow r+FC = \frac{r^2}{0}FC \Rightarrow FC = \frac{1}{0} = r, \text{ و } \delta$$

$$BC = BF + FC \rightarrow r + r, \text{ و } \delta = \boxed{4, \text{ و } \delta}$$



$$x^2 = BH \times BC \Rightarrow x = \sqrt{r \times r} = \sqrt{r}$$

$$y^2 = CH \times BC \Rightarrow y = \sqrt{14 \times r} = \sqrt{14r}$$

$$\frac{y}{x} = \frac{\sqrt{14r}}{\sqrt{r}} = \sqrt{\frac{14r}{r}} = \sqrt{14} = \text{(1)}$$

$$\frac{y}{x} = r \quad \frac{x}{y} = \frac{1}{r}$$

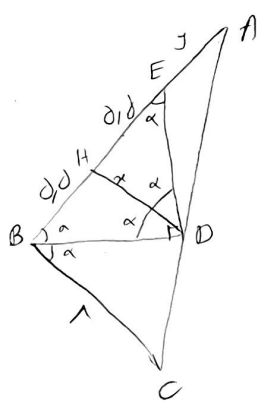


$$\hat{F} = \hat{F} = 90^\circ \left\{ \begin{array}{l} \hat{A} = \hat{A} \\ \hat{B} = \hat{B} \end{array} \right. \Rightarrow \triangle ABF \sim \triangle CEF \Rightarrow \frac{AF}{CF} = \frac{BF}{EF}$$

$$\Rightarrow \frac{x+1}{1} = \frac{y}{x}$$

$$x^2 + 1x = 1 \rightarrow x^2 + 1x - 1 = 0 \rightarrow (x+1)(x-1) = 0 \Rightarrow \begin{cases} x = -1 \times \text{غیر ممکن} \\ x = 1 \times \text{ممكن} \end{cases}$$

$$AF = x + AE = 1 + 1 = \text{(2)}$$



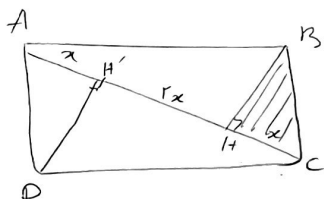
$$\angle \alpha = 40^\circ \rightarrow \alpha = \angle \delta$$

$$BC \parallel OD, BD \parallel \rightarrow D = \angle \alpha \Rightarrow \angle EDB = \angle \alpha$$

$$\angle \alpha = \delta, \delta \times \alpha, \delta = \alpha = \delta, \delta$$

$$\frac{AO}{AB} = \frac{OD}{BC} \rightarrow \frac{y + \delta, \delta}{y + 11} = \frac{11}{17} = 14y + 111 = 11y + 121$$

$$\delta y = 33 \rightarrow y = \frac{33}{\delta} = 4,4$$

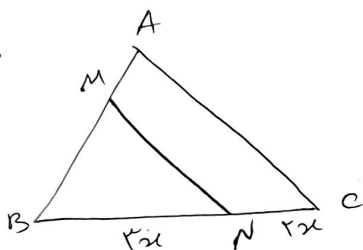


$$S_{BHC} = \frac{x \times BH}{r}$$

$$S_{ABC} = \frac{BH \times \Sigma x}{r}$$

$$S = S_{ABC} + S_{ADC} = BH \times \Sigma x$$

$$\frac{S}{BH \times \Sigma x} = \frac{BH \times \Sigma x}{\frac{x \times BH}{r}} \Rightarrow \frac{1x}{x} = 1$$

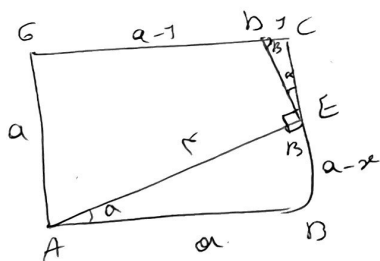


$$\frac{S_{ABC}}{S_{BMN}} = \frac{\frac{1}{r} \times AB \times BC \times \sin B}{\frac{1}{r} \times BM \times BN \times \sin B} = r$$

$$\Rightarrow \frac{AB \times \delta x}{BM \times r x} = r$$

$$\frac{AB}{BM} = \frac{r}{\delta} \Rightarrow \frac{AB - BM}{BM} = \frac{r}{\delta} \Rightarrow \frac{AM}{BM} = \frac{r}{\delta} \Rightarrow \frac{BM}{AM} = \frac{\delta}{r}$$

$$\Rightarrow 1,40$$



$$\triangle DEC \sim \triangle EBA \Rightarrow \frac{DE}{EB} = \frac{EC}{AB} = \frac{DE}{EA}$$

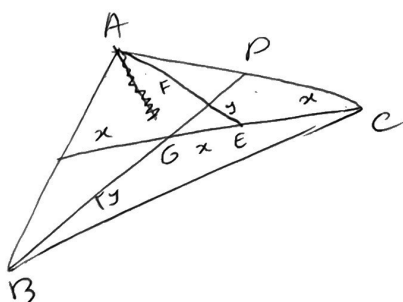
$$\frac{y}{a-x} = \frac{x}{a} = \frac{1}{\Sigma} \rightarrow \begin{cases} a = \Sigma x \\ a-x = \Sigma y \end{cases} \rightarrow \begin{cases} \Sigma x - x = \Sigma y \\ \Sigma x = \Sigma y \end{cases}$$

$$\frac{x}{y} = \frac{\Sigma}{r}$$

$$ABE \Rightarrow 14 = \alpha^2 + (a-x)^2 \Rightarrow 14 = 14x^2 + 9x^2$$

$$x^2 = \frac{14}{23} \Rightarrow x = \frac{\Sigma}{r} \Rightarrow a = \Sigma x, \alpha = \frac{14}{\delta}$$

$$S = a^2 = \frac{14 \times 14}{\delta \times \delta} = \frac{196}{28} = 7,0$$



$$AGC \Rightarrow AE, GE \Rightarrow \text{میان} \Rightarrow \text{در تقاطع}$$

$$GF = \frac{r}{4} y, FD = \frac{1}{r} y$$

$$\frac{BD}{FD} = \frac{r}{\frac{1}{r} y} = 9$$

محل برخورد میانها را نقطه
ABC
ای تقاطع می باشد