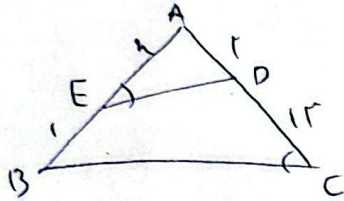
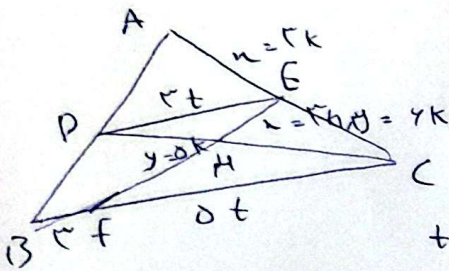


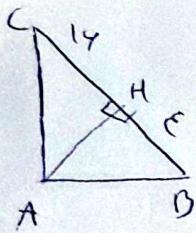
$$\begin{aligned} \triangle BFC &\sim \triangle AFE \Rightarrow \begin{cases} \hat{C} = \hat{A} \\ \hat{F}_1 = \hat{F}_2 \end{cases} \\ AC &= \sqrt{9+9} = 3\sqrt{2} = 3y \Rightarrow y = \frac{3\sqrt{2}}{3} \\ BE &= \sqrt{9+1} = \sqrt{10} = 2x \Rightarrow x = \frac{\sqrt{10}}{2} \\ \frac{x}{y} &= \frac{\frac{\sqrt{10}}{2}}{\frac{3\sqrt{2}}{3}} = \frac{\sqrt{10}}{3\sqrt{2}} = \frac{\sqrt{5}}{3} \end{aligned}$$



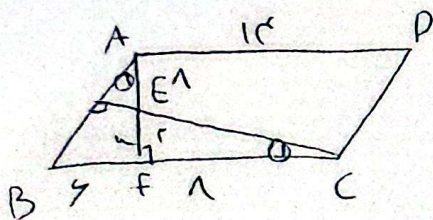
$$\begin{aligned} \triangle ADE &\sim \triangle ABC \Rightarrow \begin{cases} \hat{E} = \hat{C} \\ \hat{A} = \hat{A} \end{cases} \\ \frac{2}{x+1} &= \frac{x}{10} \quad x(x+1) = 20 \\ \boxed{x=4} \end{aligned}$$



$$\begin{aligned} \frac{3y}{10} &= \frac{\partial x}{10} \Rightarrow \frac{y}{5} = \frac{x}{5} = k \\ \Rightarrow x &= 5k \quad y = 5k \\ \frac{3+5k}{5+5k} &= \frac{2k}{3k+5k} \quad 9+15k = 10+10k \\ t &= \frac{1}{5} = 0.2 \\ BC &= 3 + 5 \times 0.2 = 4 \end{aligned}$$



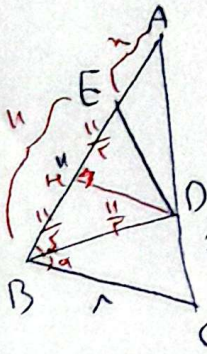
$$\begin{aligned} BC &= 5 \\ HB &= 3 \\ AB^2 &= HB \times BC = 3 \times 5 = 15 \quad AB = \sqrt{15} \\ AC^2 &= CH \times BC = 2 \times 5 = 10 \quad AC = \sqrt{10} \\ \frac{AC}{AB} &= \frac{\sqrt{10}}{\sqrt{15}} = \frac{2}{3} \end{aligned}$$



$$\begin{aligned} \hat{A}_1 &= \hat{C}_1 \quad \left. \begin{matrix} E_1 = \text{هر دو قائم} \\ E_2 = 90^\circ \end{matrix} \right\} \Rightarrow \triangle ABF \sim \triangle EFC \\ \frac{FC}{AF} &= \frac{EF}{BF} \Rightarrow \frac{1}{1+x} = \frac{x}{y} \\ x^2 + 1x - 1 \times 0 &= 0 \Rightarrow (x+1)(x-1) = 0 \quad x = -1 \text{ یا } 1 \\ \boxed{AF = 1+1 = 2} \end{aligned}$$

$$19n + 88 = 11n + 141 \quad 8n = 53 \quad n = 9,4$$

عاریض مثلث



$$DH \parallel BC, H = 90^\circ \Rightarrow \hat{B} = 90^\circ \quad BD = DE \quad \alpha = 40^\circ$$

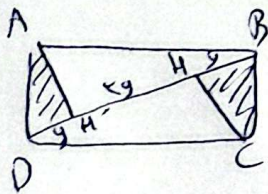
بند دس الساتر
دو خط الزايع

$$BD = DE$$

DH - ميان دهم

$$BH = EH = \frac{11}{2}$$

$$DH \parallel BC \Rightarrow \frac{AH}{AD} = \frac{DH}{BC} \quad \frac{n+11}{n+11} = \frac{11}{n} \Rightarrow n+11 = 11$$

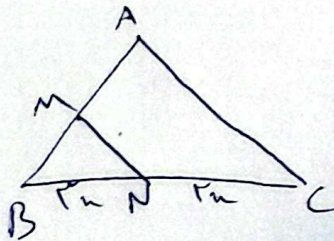


$$h^2 = y \times 2y \quad h = \sqrt{2}y$$

$$S_{\square} = 2 \times S_{\triangle ABD} = 2 \times \frac{1}{2} \times \frac{2y \times y}{2} = \sqrt{2}y \times y$$

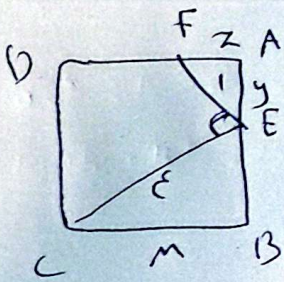
$$= \sqrt{2}y^2 \quad (I)$$

$$S_{\triangle} = \frac{h \times y}{2} = \frac{\sqrt{2}y^2}{2} \quad (II) \quad \frac{(I)}{(II)} = \frac{\sqrt{2}y^2}{\frac{\sqrt{2}y^2}{2}} = 2$$



$$\frac{S_{BMN}}{S_{ABC}} = \frac{BM \times BN}{BA \times BC} = \frac{BM}{AB} \times \frac{1}{2} = \frac{1}{4}$$

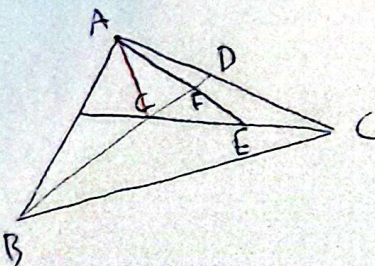
$$\frac{BM}{AB} = \left(\frac{1}{2} \right)^2 = \frac{1}{4} \quad \frac{BM}{AM} = \frac{1}{3} = \frac{1}{4}$$



$$A \hat{E} F \sim B \hat{C} E$$

$$\frac{z}{m-y} = \frac{y}{m} = \frac{1}{2} \quad y = \frac{m}{2}, n = \frac{3m}{2}$$

$$B \hat{C} E = m^2 + \left(\frac{3}{2} \right)^2 = 10 \quad m^2 = \frac{16 \times 16}{25} = 10,4$$



$$FD = \frac{1}{2} GD$$

$$D = \frac{1}{2} BD$$

بر اساس متن سؤال

فهم مرکز ثقل مثلث

AGC : ABC

مرکز ثقل مثلث

BD = 9

FP