

در مثل زیر BD نیمه زاویه =
در مثل BDE ارتفاع، ارد بر ضلع BE موازی BC، ضلع AE؟

$$OD = x$$

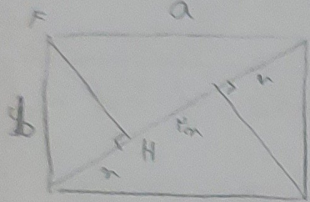
$$x^2 = 2/0 \times 2/5 \rightarrow x = 2/5$$

$$\frac{AO}{AB} = \frac{DO}{BC} \rightarrow \frac{y+0/0}{y+11} = \frac{11}{1} \Rightarrow 14y+111=11y+121 \Rightarrow 3y=10 \Rightarrow y=10/3$$

BD، BC موازی

EDB مثل قائمه الزویه
مستطیل

$$y = 10/3$$



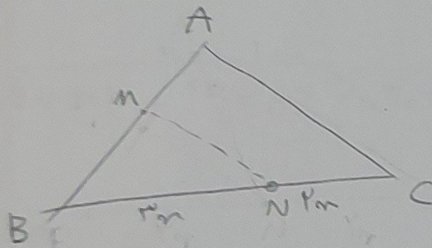
$$\frac{S_{\text{مستطیل}}}{S_{FHB}} = \frac{2x \times 2y}{x \times y} = 4$$

$$b = x \sqrt{2} = \sqrt{2}x \rightarrow b = \sqrt{2}x$$

$$a = \sqrt{2}x \sqrt{2} = 2x \rightarrow a = 2\sqrt{2}x$$

$$HF = \sqrt{(x\sqrt{2})^2 - x^2} = x\sqrt{2}$$

نقطه M، N بر وتر افتاده
ABC مثل قائم الزویه، BN=NC / BC، AB موازی BC، AM موازی BN

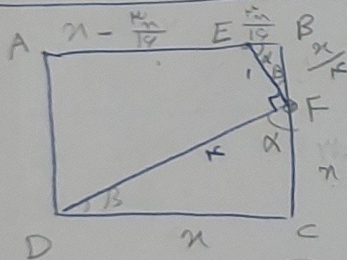


$$\frac{S_{ABC}}{S_{BMN}} = \frac{\frac{1}{2} \times AB \times BC \times \sin B}{\frac{1}{2} \times BM \times BN \times \sin B} = 4$$

$$\frac{AB \times 2x}{BM \times \sqrt{2}x} = 4 \Rightarrow \frac{AB}{BM} = \frac{4}{\sqrt{2}} = 2\sqrt{2}$$

$$\frac{AB - BM}{BM} = \frac{f}{a}$$

$$\frac{AM}{BM} = \frac{f}{a} \quad \frac{BM}{AB} = \frac{a}{f} = 1/20$$



مساحت مربع؟

$$x - \frac{x}{f} = \frac{14}{f}$$

$$a^2 = b^2 + c^2 \rightarrow 14^2 = x^2 + \frac{9x^2}{14} = \frac{19x^2}{14} \rightarrow x = \frac{14}{\sqrt{19}}$$

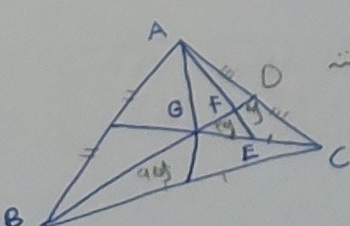
$$S = \frac{14}{\sqrt{19}} \times \frac{14}{\sqrt{19}} = 10/19$$

$$110 - (F_1 + F_2) = 90$$

$$F_1 + F_2 = \alpha + \beta = 90$$

$$FDC \rightarrow \beta + \alpha + 90 = 110 \rightarrow \beta = \alpha$$

$$\triangle DFC \sim \triangle BEF \rightarrow \frac{DF}{FE} = \frac{DC}{BF} \rightarrow f = \frac{x}{BF} \rightarrow \frac{2x}{f}$$



G مرکز ثقل مثلث ABC = I
GE = EC
مستطیل

$$GF = \frac{1}{3}y$$

$$FD = \frac{1}{3}y$$

$$\frac{BD}{FD} = \frac{3y}{\frac{1}{3}y} = 9$$