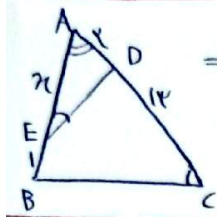


$$\frac{BC}{AE} = \frac{CF}{AF} = \frac{BF}{FE} = 2$$

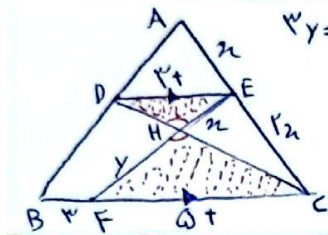
$$\text{خواسته سوال: } \frac{EF}{AF} = \frac{\sqrt{10}}{2} = \frac{\sqrt{5}}{2}$$

مثبت $\Rightarrow (AC)^2 = (AB)^2 + (BC)^2 \Rightarrow AC = 2\lambda\sqrt{2} \Rightarrow y = 2\lambda\sqrt{2}$

مثبت $\Rightarrow (BE)^2 = (AE)^2 + (AB)^2 \Rightarrow z = 2\lambda\sqrt{10} \Rightarrow z = \frac{\sqrt{10}}{2}\lambda$



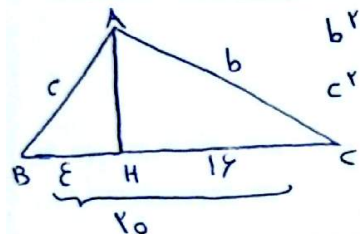
$\Rightarrow \frac{y}{2+1} = \frac{x}{10} \Rightarrow y_0 = 2x + 2 \Rightarrow 2x + 2 - y_0 = 0 \Rightarrow (x+6)(x-4) = 0 \Rightarrow \begin{cases} x=4 \\ x=-6 \end{cases}$



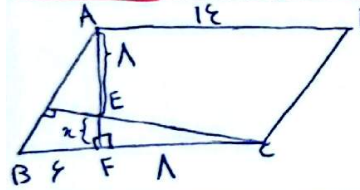
$y = 0.4 \Rightarrow y = \frac{0.4}{2}\lambda$ $EC = 1, y = \frac{1}{2} \times \frac{0.4}{2}\lambda = 0.1\lambda$

$\frac{AE}{AC} = \frac{DE}{BC} \Rightarrow \frac{1}{2} = \frac{y}{0.4+2} \Rightarrow 9t = 0.4t + 2 \Rightarrow t = \frac{2}{9}$

$BC = 2 + 0.4t = 2 + \frac{0.4}{9} = 2.044$

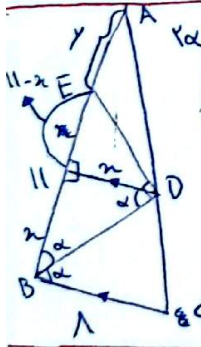


$b^2 = CH \times BC = 14 \times 20 \Rightarrow \frac{b^2}{c^2} = \frac{14 \times 20}{8 \times 20} \Rightarrow \left(\frac{b}{c}\right)^2 = \frac{14}{8} \Rightarrow \frac{b}{c} = \sqrt{2}$



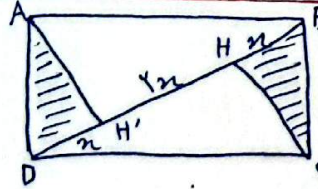
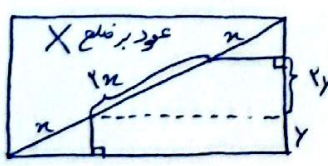
$\frac{EF}{BF} = \frac{FC}{AF} \Rightarrow \frac{x}{2} = \frac{1}{\lambda+x} \Rightarrow 2x + \lambda x - 2 = 0 \Rightarrow (x-2)(x+1) = 0$

$\xrightarrow{x>0} x = 2$ $AF = \lambda + 2 = 12$



$\alpha = 90^\circ = \hat{B}$ $x = 11 - x \Rightarrow 2x = 11 \Rightarrow x = 5.5$

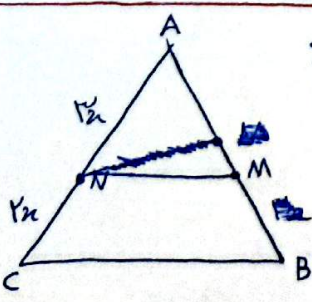
$\frac{DH}{BC} = \frac{AH}{AB} \Rightarrow \frac{0.4}{2} = \frac{y+0.4}{y+11} \Rightarrow 14y + 4.4 = 0.4y + 4.4 \Rightarrow 14y = 0.4y \Rightarrow y = 0.028$



$h^2 = x \times 2x \Rightarrow h = \sqrt{2}x$

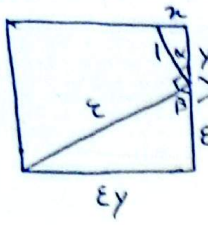
$S_{\square} = 2 \times S_{\triangle ABD} = 2 \times \frac{1}{2} \times \frac{1}{2} \times 2 = 1$

$S_{\triangle} = \frac{h \times x}{2} = \frac{\sqrt{2}x^2}{2} \Rightarrow \frac{S_{\square}}{S_{\triangle}} = \frac{1}{\frac{\sqrt{2}x^2}{2}} = \sqrt{2}$



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

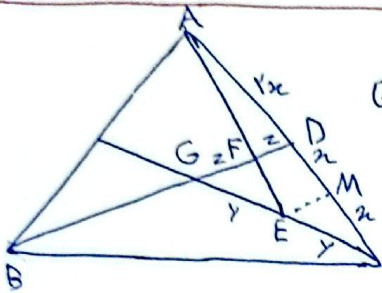
$\rightarrow \frac{BM}{AM} = \frac{1}{1} = 1$



$\epsilon y = \epsilon x + y \Rightarrow 3y = \epsilon x$
 ابعاد روی تصویر با نسبت دو مثلث مشابه $\Rightarrow$
 $\epsilon x = 3y \quad (3y)^2 + (\epsilon y)^2 = 1^2 \Rightarrow 20y^2 = 1^2 \Rightarrow y = \frac{\epsilon}{\sqrt{20}}$

$\epsilon y = \frac{\epsilon}{\sqrt{20}} \times \epsilon = \frac{16}{\sqrt{20}} \Rightarrow$

$S_{\square} = \frac{16}{\sqrt{20}} \times \frac{16}{\sqrt{20}} = 10.128$



$\frac{GD}{BD} = \frac{1}{3}, AD=DC$ و نسبت به BM
 $\triangle GDC : ME \parallel GD \xrightarrow{\text{مثلث}} \frac{EC}{EG} = \frac{CM}{DM} \Rightarrow EC=EG \rightarrow 1 = \frac{CM}{DM} \Rightarrow CM=DM$

$\triangle AEM : FD \parallel EM \xrightarrow{\text{مثلث}} \frac{AD}{AM} = \frac{FD}{EM} \Rightarrow \frac{2}{3} = \frac{FD}{EM} \Rightarrow EM = \frac{3}{2} FD$

$\triangle GDC : EM \parallel DG \xrightarrow{\text{مثلث}} \frac{CM}{CD} = \frac{EM}{GD} \Rightarrow \frac{2}{2} = \frac{EM}{GD} \Rightarrow GD = EM$

$\rightarrow GD = \frac{3}{2} FD \Rightarrow GD = \frac{3}{2} FD$

$\frac{GD}{BD} = \frac{1}{3} \Rightarrow \frac{3}{2} FD = \frac{1}{3} \Rightarrow \frac{BD}{FD} = 9$