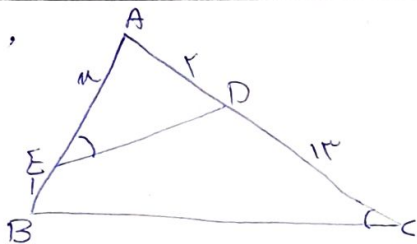


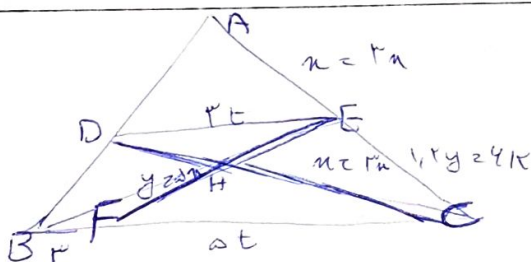
$BFC \sim AFE$
 $AC = \sqrt{2+2} = 2\sqrt{2} = 2y \Rightarrow y = \frac{2\sqrt{2}}{2} = \sqrt{2}$
 $BE = \sqrt{1+4} = \sqrt{5} = 5u \Rightarrow u = \frac{\sqrt{5}}{5}$
 $\frac{x}{y} = \frac{\frac{\sqrt{10}}{5}}{\frac{2\sqrt{2}}{2}} = \frac{\sqrt{10}}{2\sqrt{2}} = \frac{\sqrt{5}}{2}$

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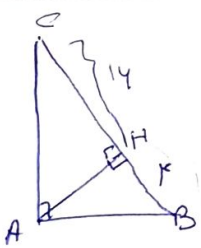
$ADE \sim ABC$
 $\frac{y}{x+1} = \frac{x}{10} \Rightarrow x(x+1) = 10$
 $x = 2$

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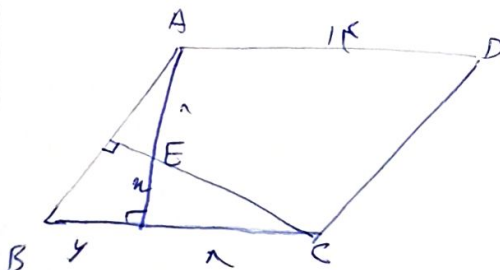
$\frac{y}{2} = \frac{x}{2} = k \Rightarrow y = 2k, x = 2k$
 $\frac{2k}{2+2k} = \frac{2k}{2k+2k} = \frac{1}{2} \Rightarrow$
 $4k = 2+2k \Rightarrow 2k = 2 \Rightarrow k = 1$
 $BC = 2+2 \times 1 = 4$

۳



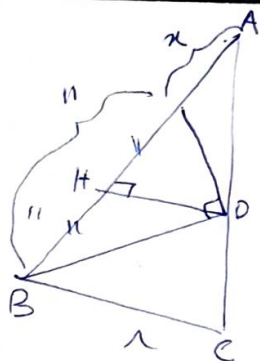
$BC = \sqrt{2}$
 $AB = 1$
 $AC = 1$
 $AB^2 = CH \times BC = 1 \times \sqrt{2} = \sqrt{2} \Rightarrow AB = \sqrt[4]{2}$
 $AC^2 = CH \times BC = 1 \times \sqrt{2} = \sqrt{2} \Rightarrow AC = \sqrt[4]{2}$
 $\frac{AC}{AB} = \frac{1\sqrt{2}}{1\sqrt{2}} = 1$

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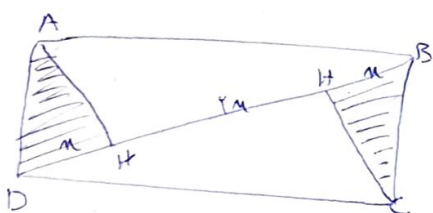


$\hat{A}_1 = \hat{C}_1, \hat{E}_1 = \hat{E}_2 \Rightarrow \triangle ABF \sim \triangle EFC$
 $\frac{FC}{AF} = \frac{EF}{BF} \Rightarrow \frac{1}{1+m} = \frac{x}{y} \Rightarrow x^2 + 11x - 6 = 0$
 $\Rightarrow (x+11)(x-6) = 0 \Rightarrow x = -11 \text{ or } x = 6$
 $x = 6 \Rightarrow AF = 1+6 = 7$

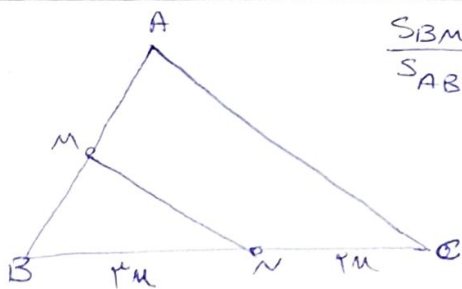
۵



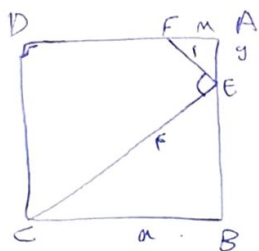
$BH \parallel DC, H = 90^\circ \Rightarrow \angle B = 90^\circ \xrightarrow{BD} \alpha = 45^\circ$
 $BD = DE$ نسبت
 $\triangle BDE$ مساوی الساقین
 $BH = EH = \frac{11}{2}$ نصف وتر
 $DH \parallel BC \xrightarrow{\text{نقطة}} \frac{AH}{AB} = \frac{DH}{BC} \Rightarrow \frac{\alpha + \frac{11}{2}}{\alpha + 11} = \frac{\frac{11}{2}}{\lambda} \Rightarrow \frac{2\alpha + 11}{2\alpha + 22} = \frac{11}{\lambda}$
 $\Rightarrow 14\alpha + 11\lambda = 11\alpha + 22 \Rightarrow 3\alpha = 11 \Rightarrow \alpha = 4,4$



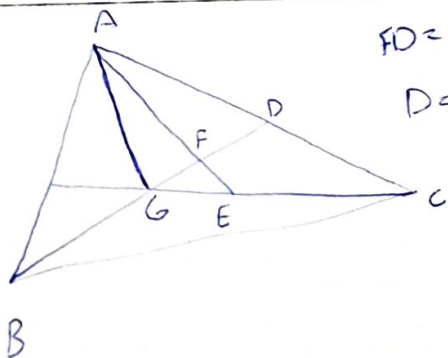
$h^2 = \alpha \times \lambda = h = \sqrt{\alpha \lambda}$
 $S_{\triangle ABD} = \frac{1}{2} \times \alpha \times \lambda = \frac{1}{2} \times \sqrt{\alpha \lambda} \times \sqrt{\alpha \lambda} = \frac{1}{2} \times \alpha \times \lambda = \frac{1}{2} \times \alpha \times \lambda$
 $S_{\triangle BCD} = \frac{1}{2} \times \alpha \times \lambda = \frac{1}{2} \times \alpha \times \lambda$
 $\frac{\sqrt{\alpha \lambda}}{\sqrt{\alpha \lambda}} = 1$



$\frac{S_{BMN}}{S_{ABC}} = \frac{BM \times BN}{BA \times BC} = \frac{BM}{AB} \times \frac{BN}{BC} = \frac{1}{\alpha} \Rightarrow \Delta$
 $\frac{BM}{AB} = \frac{1}{\alpha} \Rightarrow \frac{BM}{AM} = \frac{1}{\alpha} = 1,25$



$FA = \alpha, \angle AFE = \angle BCE, \triangle AFE \sim \triangle BCE$
 $\frac{\alpha}{\alpha - y} = \frac{y}{\alpha} = \frac{1}{\alpha} \Rightarrow y = \frac{\alpha}{\alpha} \Rightarrow \alpha = \frac{\alpha}{14} \Rightarrow \alpha = \frac{1}{14}$
 $\Rightarrow \alpha^2 = \frac{(14)^2}{14} = 10,25$



$FD = \frac{1}{10} GD \xrightarrow{\text{مركز ثقل}} \triangle ACG$
 $D = \frac{1}{10} BD \xrightarrow{\text{مركز ثقل}} \triangle ABC$
 $\Rightarrow \frac{BD}{FD} = 9$