

$AE = n$ و $ED = 2n$ و $AD = 3n$

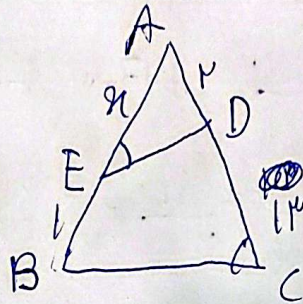
$AFE \sim BFC \rightarrow \frac{نسبت}{شکل} = 3$ $BE = n^2 + n^2 = 2n^2 \rightarrow \sqrt{2}n$

$EF = \frac{1}{3} \sqrt{2}n$ $AC = 3\sqrt{2}n \rightarrow AF = \frac{1}{3} \times 3\sqrt{2}n$

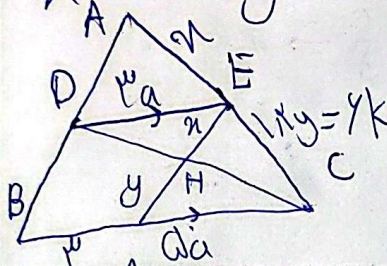
$\frac{EF}{AF} = \frac{\sqrt{2}}{3}$

$\begin{cases} \hat{AED} = \hat{ACB} \\ \hat{BAC} = \hat{EAD} \end{cases} \xrightarrow{ج} \triangle ADE \sim \triangle ABC$

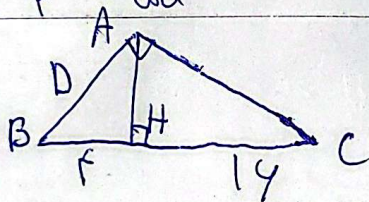
$\frac{3}{n+1} = \frac{n}{1n} \rightarrow n = 1$



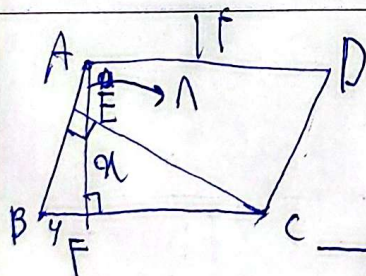
$x = 3k$ و $y = 4k$



$\frac{3a}{3+a} = \frac{3k}{4k} = \frac{1}{4} \rightarrow a = \frac{3}{4} = \frac{3}{4} \sqrt{2}$
 $BC = \frac{7}{4} \sqrt{2}$



$\begin{cases} AC^2 = 14 \times 14 \\ AB^2 = 7 \times 7 \end{cases} \rightarrow \frac{AC^2}{AB^2} = 4 \rightarrow \frac{AC}{AB} = 2$



$\triangle AEF \sim \triangle CEF$

$\rightarrow \frac{BF}{EF} = \frac{AF}{CF} \rightarrow \frac{2}{n} = \frac{1+n}{1}$

$\rightarrow n(n+1) = 1 \Rightarrow n = 1 \rightarrow AF = 1+n = 2$

$B=H=90^\circ \rightarrow B_1=B_2=f\omega \xrightarrow[H_2=f\omega]{H=90^\circ} D_1=D_2=f\omega \rightarrow E_1=f\omega$
 $BH=HE=\omega\omega$
 $DH^2=BH \times HE \rightarrow DH^2=\omega\omega \times \omega\omega \rightarrow DH=\omega\omega, AE=\omega$
 $HD \parallel BC \rightarrow \frac{\omega+\omega\omega}{\omega+\omega} = \frac{\omega\omega}{\omega} \rightarrow \omega+\omega\omega = \omega\omega + \omega\omega$
 $\rightarrow \omega\omega = \omega\omega \rightarrow \omega = \omega$

$BH=DF = \frac{1}{2} FH$
 $DF=\omega, FH=\omega\omega, BH=\omega$
 $\frac{S_{HBC}}{S_{BCD}} = \frac{BH}{BD} = \frac{1}{2}$
 $\frac{S_{HBC}}{S_{BCD}} \times \frac{S_{BCD}}{S_{ABCD}} = \frac{S_{HBC}}{S_{ABCD}} = \frac{1}{2} \times \frac{1}{2} = \frac{1}{4} \rightarrow \frac{S_{ABCD}}{S_{HBC}} = 4$

$AQ = \sqrt{1}$
 $\triangle ACP \sim \triangle AQP \rightarrow \frac{a}{\sqrt{1}} = \frac{f}{\omega} \rightarrow \omega = \frac{f\sqrt{1}}{\omega}$
 $\rightarrow S = \frac{f\sqrt{1}}{\omega}$

$\frac{S_{BMN}}{S_{ABC}} = \frac{BM \times BN}{BA \times BC} = \frac{BM}{AB} \times \frac{BN}{BC} = \frac{1}{4}$
 $\rightarrow \frac{BM}{AB} = \frac{\omega}{4} \rightarrow \frac{BM}{AM} = \frac{\omega}{f} = \frac{1}{4}$

$\frac{FD}{EM} = \frac{f\omega}{\omega\omega} = \frac{1}{\omega}$
 $\frac{EM}{GD} = \frac{1}{f} \rightarrow \frac{EM}{BD} = \frac{1}{f}$
 $\frac{FD}{BD} = \frac{1}{9} \rightarrow \frac{BD}{FD} = 9$