نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس .....

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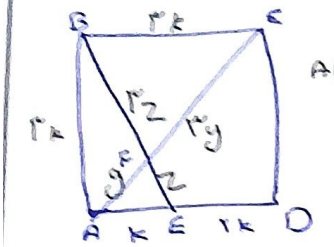


$AE=k \rightarrow ED=2k$

$AB=AD=BC \rightarrow BC=3k$, $AB=4k$

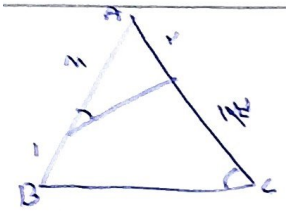
$\rightarrow BFC \sim AEF \rightarrow \frac{CF}{AF}=\frac{BF}{BE}=2$

$FZ=\sqrt{10k^2} \rightarrow z=\frac{k\sqrt{10}}{4}$

$Fy=4k\sqrt{2} \rightarrow y=\frac{4k\sqrt{2}}{4}$

$\frac{EF}{AF}=\frac{z}{y}=\frac{\frac{k\sqrt{10}}{4}}{\frac{4k\sqrt{2}}{4}}=\frac{\sqrt{5}}{2}$

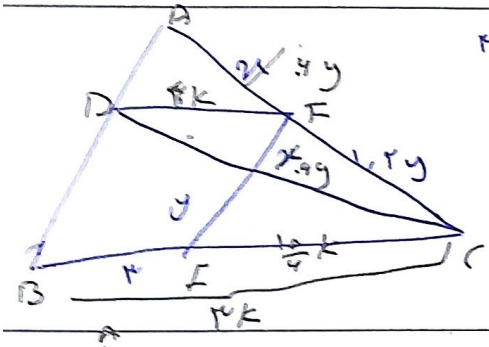
۲



$\frac{2}{1+m}=\frac{m}{10} \rightarrow 20=m^2+m \rightarrow m^2+m-20=0$

$m=-4$ ✗ ، 5 ✓ $\rightarrow m=5$.

۳



$2y=5x \rightarrow x=0.4y$

$\frac{DF}{BC}=\frac{0.9y}{1.25y}=2$

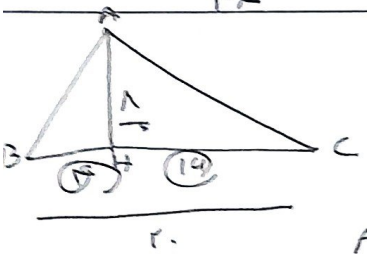
$\frac{DF}{Fc}=\frac{0.9y}{y} \rightarrow Fc=\frac{10}{9}k$

$\frac{10}{9}k+2=3k$

$\rightarrow 9k=27.5$

$\rightarrow Bc=3k=9.75$

۴



$AH=\sqrt{4\times16}=8$

$AB=\sqrt{4\times20}=4\sqrt{5}$

$AC=\sqrt{16\times20}=8\sqrt{5}$

$\frac{AB}{AC}=\frac{4\sqrt{5}}{8\sqrt{5}}$ (۲)

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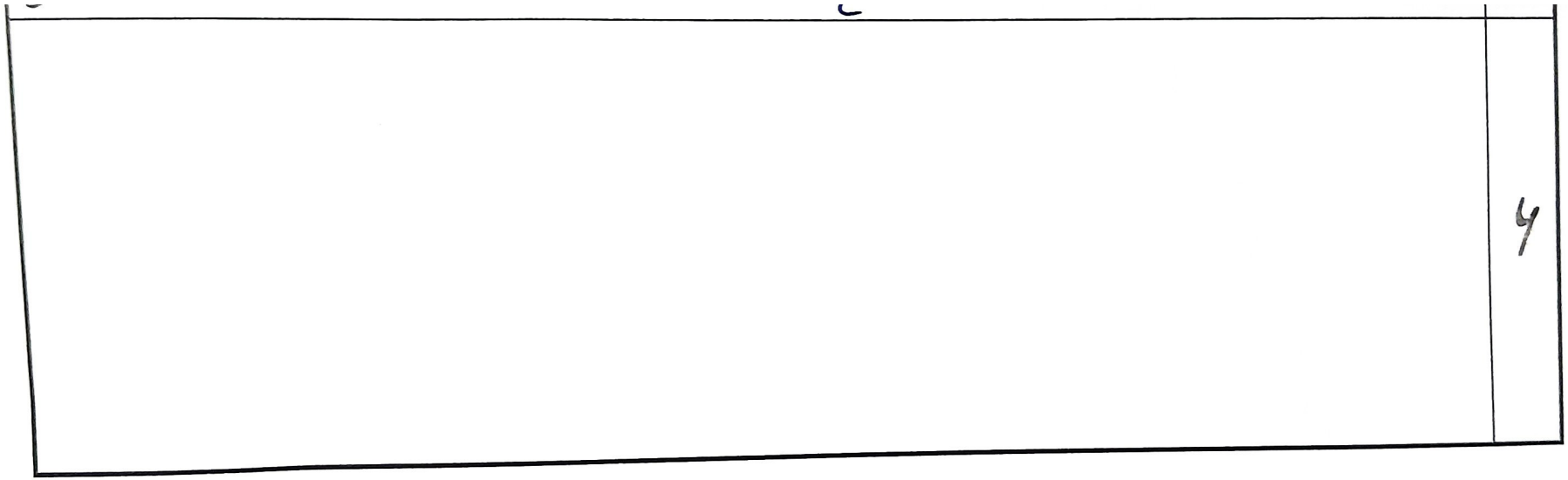
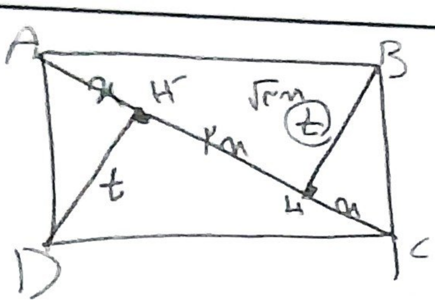
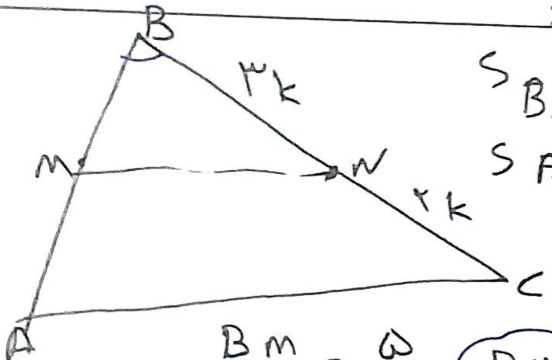

4



$ABH \sim DH'A$

$\rightarrow \frac{x}{t} = \frac{t}{3x} \rightarrow t = \sqrt{3}x$

$\frac{S_{\text{مستطیل}} = \frac{\sqrt{3}x \times 4x}{2} \times 2 = 4\sqrt{3}x^2}{S_{\text{کوچکترین}} = \frac{\sqrt{3}x \times x}{2} = \frac{\sqrt{3}x^2}{2}}$ (۸:۱) ۷

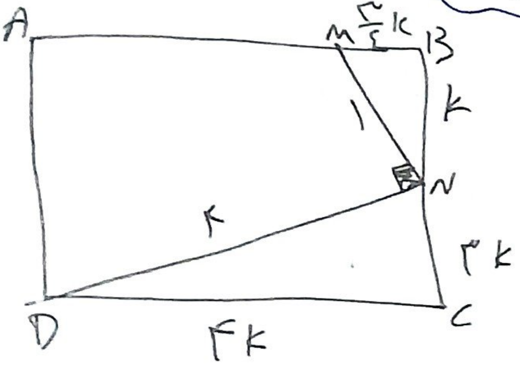


$S_{BMN} = \frac{1}{2} 3k \times BM \times \sin B$

$S_{ABC} = \frac{1}{2} \times 5k \times AB \times \sin B$ ۸

$\rightarrow \frac{S_{BMN}}{S_{ABC}} = \frac{\frac{1}{2} \times 3k \times BM \times \sin B}{\frac{1}{2} \times 5k \times AB \times \sin B} = \frac{1}{3}$

$\rightarrow \frac{BM}{AB} = \frac{5}{9} \rightarrow \frac{BM}{AM} = \frac{5}{4}$

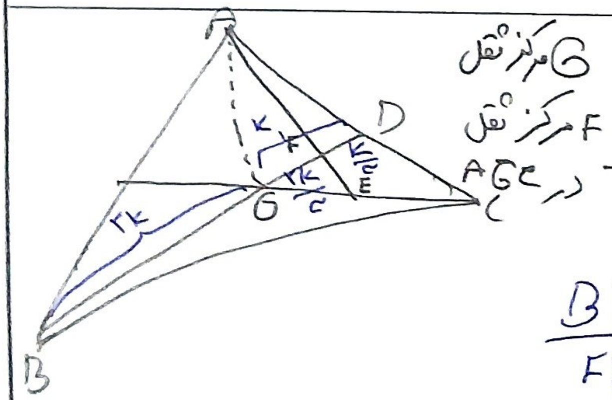


$B\hat{M}N \sim D\hat{N}C \rightarrow BN = k \rightarrow DC = 4k$

$BC = DC \rightarrow NC = 3k \rightarrow MB = \frac{3}{4}k$ ۹

$(3k)^2 + (4k)^2 = 16 \rightarrow k = \frac{16}{5}$

$\rightarrow S = k^2 = \frac{16 \times 16}{25} = \frac{256}{25}$



G مرکز ثقل $\rightarrow BG = 2k$, $GD = k$

F مرکز ثقل

در AGC $\rightarrow FD = \frac{k}{3}$, $GF = \frac{2k}{3}$ ۱

$\frac{BD}{FD} = \frac{3k}{\frac{k}{3}} = 9$