14

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

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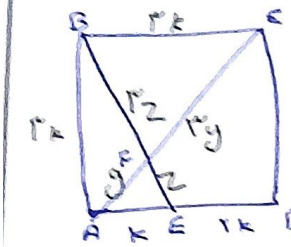

$AE=k \rightarrow ED=2k$

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

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

$Fz=\sqrt{10k^2} \rightarrow z=\frac{k\sqrt{10}}{5}$

$Fy=2k\sqrt{5} \rightarrow y=\frac{2k\sqrt{2}}{5}$

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

(۲)

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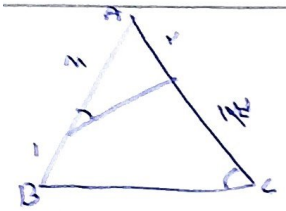

$\frac{2}{1+m}=\frac{m}{10} \rightarrow 20=m^2+m \rightarrow m^2+m-20=0$

$m=-5$ ✗ ، 4 ✓ $\rightarrow m=4$ ✓

(۲)

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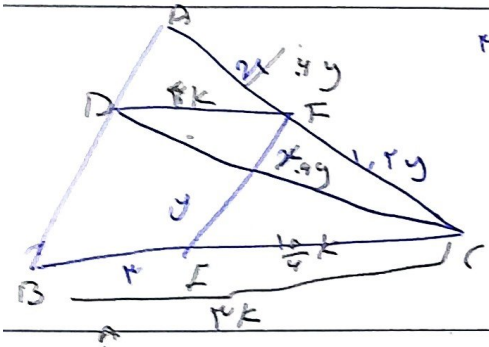

$2y=5x \rightarrow x=0.4y$

$\frac{DF}{BC}=\frac{0.9y}{1.5y}=2$

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

$\rightarrow 9k=22.5$

$\rightarrow BC=3k=9.75$ ✓

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

(۲)

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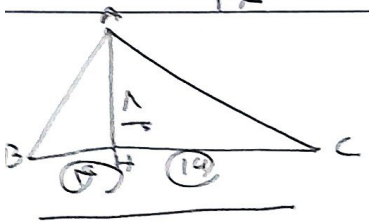

$AH=\sqrt{4\times 16}=8$

$AB=\sqrt{4\times 20}=4\sqrt{5}$

$AC=\sqrt{16\times 20}=8\sqrt{5}$

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

(۲)

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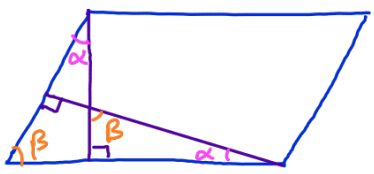
$C\hat{E}F \sim A\hat{B}F$



روبه‌رو α $\rightarrow \frac{x}{4}=\frac{8}{x+8}$ روبه‌رو β

$\rightarrow \boxed{x=4}$ $\quad AF=x+8=\boxed{12}$

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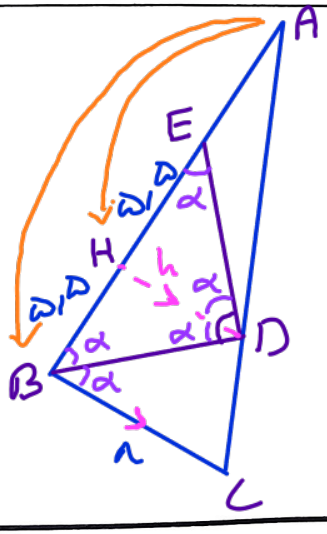

$h^2 = ۵٫۵ \times ۵٫۵ \rightarrow \boxed{h = ۵٫۵}$

تالس $= \dfrac{x + ۵٫۵}{۱۱ + x} = \dfrac{۵٫۵}{۸} \rightarrow \boxed{x = \dfrac{۳۳}{۵}}$

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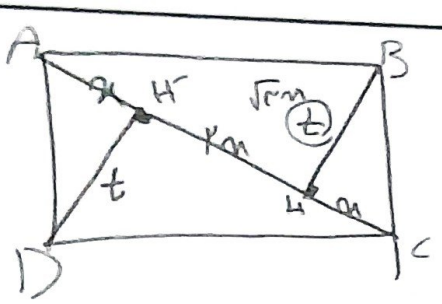
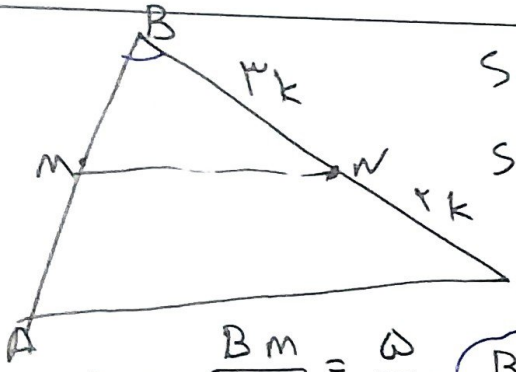


$ABH \sim DH'A$

$\rightarrow \frac{m}{t} = \frac{t}{2m} \rightarrow t = \sqrt{6}m$

$\frac{S_{مستقیل}}{S_{کوچکترین}} = \frac{\frac{\sqrt{2}m \times 4m}{2} \times 2}{\frac{\sqrt{6}m \times m}{2}} = \frac{4\sqrt{6}m^2}{\frac{\sqrt{6}m^2}{2}} = 8\sqrt{6}$

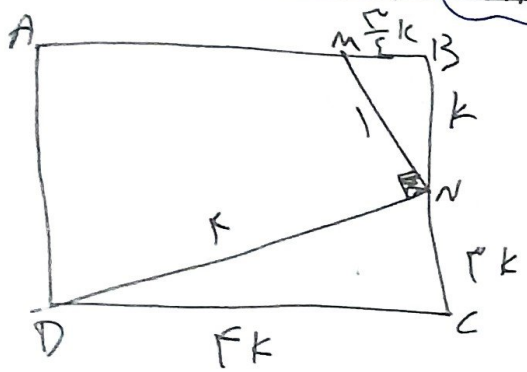


$S_{BMN} = \frac{1}{2} \times 2k \times BM \times \sin B$

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

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

$\rightarrow \frac{BM}{AB} = \frac{2}{5} \rightarrow \frac{BM}{AM} = \frac{2}{3}$

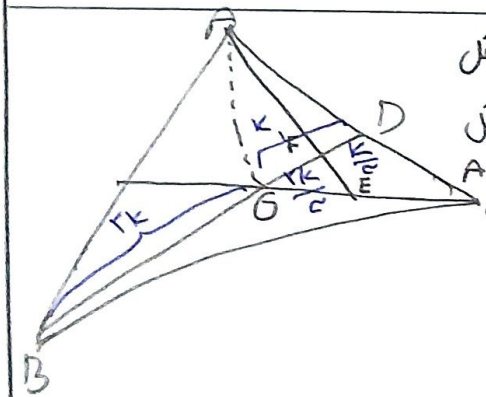


$BMN \sim DNC \rightarrow BN = k \rightarrow DC = 4k$

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

$(3k)^2 + (4k)^2 = 19 \rightarrow k = \frac{19}{5}$

$\rightarrow S = 2k^2 = \frac{19 \times 19}{25} = \frac{361}{25}$



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

مرکز ثقل F

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

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