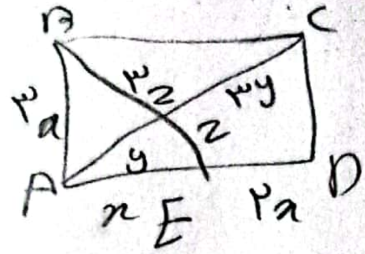
۲۱   B۰۰ گروه ۱۱   ۱۷   به نام خدا   G طمع دارخواه

۱)



$ED = ۲AE$

$\frac{EF}{AF} = ?$

$AC \to ۳\sqrt{۲}x = ۴y$

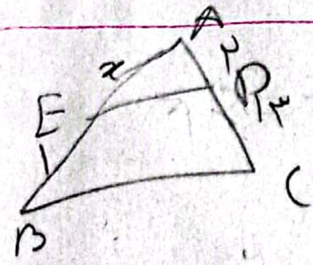
$y = \frac{۳\sqrt{۲}}{۴} \sim (AF)$

$BE \to \sqrt{۱۰}x = ۴z \to \frac{\sqrt{۱۰}x}{۴} = z\ (FE)$

$\frac{FE}{AE} = \frac{\frac{\sqrt{۱۰}}{۴}}{\frac{۳\sqrt{۲}}{۴}} = \frac{۱۰}{۳\sqrt{۲۰}} \to \frac{\sqrt{۵}}{۳}$

۲)

۲)

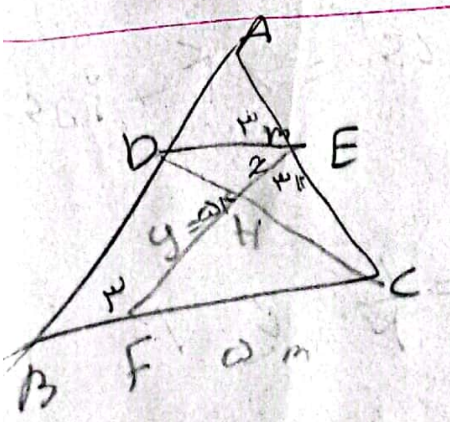


$ABC \sim AED \to \frac{AB}{AD} = \frac{BC}{ED} = \frac{AC}{AE}$

$۳۰ = x(x+1) \to x = ۵$ $\frac{x+1}{۲} = \frac{۱۵}{x}$

۲)

۳)



$۳y = ۵x \to x = ۳k,\ y = ۵k$ $FC = ۵m$

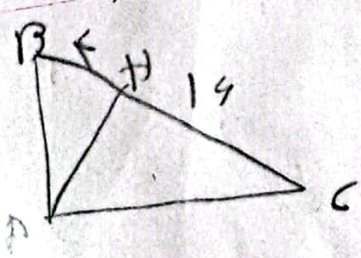
$CHF \sim DHE \to \frac{HE}{HF} = \frac{۳}{۵} \to DE = ۳m$

$DE \parallel BC \to \frac{DE}{BC} = \frac{AE}{AC} \to \frac{۳}{۳+۵m} = \frac{۱}{۳}$

$BC = ۵m + ۳ = ۹/۵$ $m = ۶/۵$

۲)

۴)

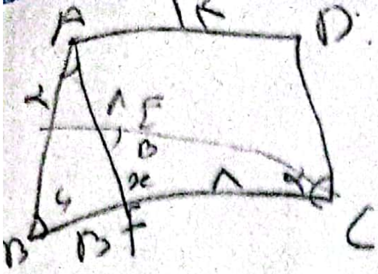


$AB^۲ = BH \cdot BC = ۸۰$

$AC^۲ = CH \cdot BC = ۳۲۰$

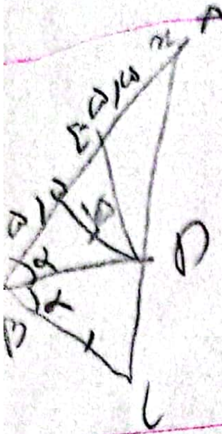
$\frac{AC^۲}{AB^۲} = ۴ \to \frac{AC}{AB} = ۲$

۲)

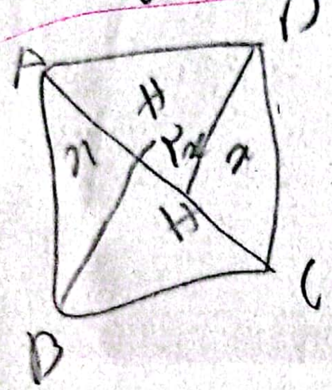


CEF و ABF متشابه $\to \frac{x}{4} = \frac{8}{x+6} \to x = 4$

$AF = 12$



$\frac{x+5/5}{x+11} = \frac{5/2}{8}$ $\quad x = 4/6$



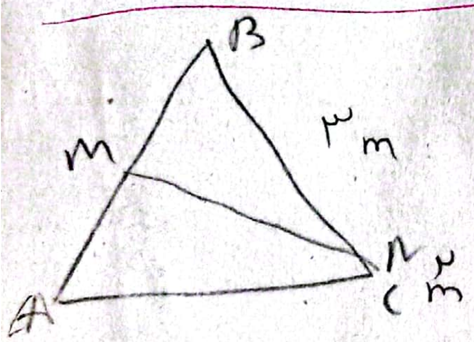
$AD^2 = x \cdot 4x$

$BC^2 = 3x \cdot 4x$

$BH^2 = x \cdot 3x$

$\frac{S_{ABCD}}{S_{ABH}} = \frac{BC \times AB}{BH \times 0/5 \times AH}$

$\frac{\sqrt{12}x + 2x}{\sqrt{3}x \cdot x \times 0/5} = \frac{4\sqrt{3}}{\frac{\sqrt{3}}{2}} = 8$



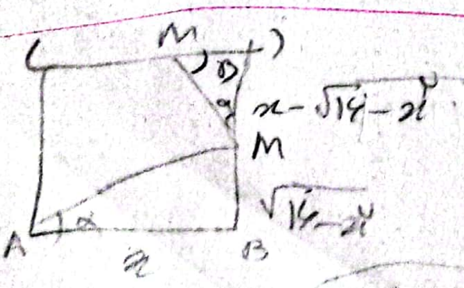
$S_{ABC} = \frac{1}{2} BC \cdot AB \cdot \sin B$

$S_{BNM} = \frac{1}{2} BN \cdot BN \cdot \sin B$

فرض $\frac{1}{2} BC \cdot AB \times \sin B = 3 \times \frac{1}{2}$

$5m \times AB = 3(3m) \times B$ $\quad DN \times 5 [illegible]$

$\frac{BN}{AB - BM} = [illegible]$ $\quad M \to \frac{BM}{AB} = \frac{5}{9}$

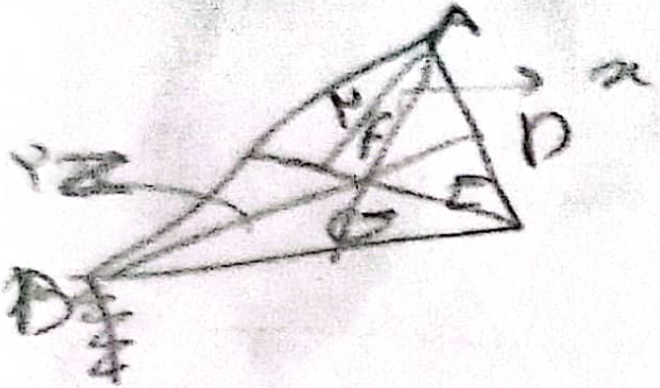


$\overset{\triangle}{AMB}$ متشابه $MDM \to \frac{DM}{AB} = \frac{ND}{MB} = \frac{AM}{NM}$

$\frac{x - \sqrt{16 - x^2}}{\sqrt{16 - x^2}} = \frac{1}{4}$

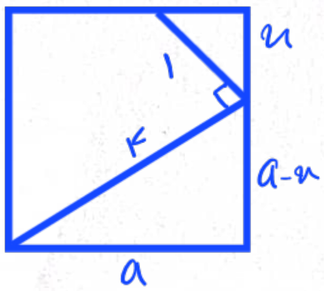
$\frac{x}{\sqrt{16 - x^2}} = \frac{5}{4} \to 4x = 5\sqrt{16 - x^2} \to 16x^2 = 25(16 - x^2)$

$S_{ABCD} = \frac{[illegible]}{[illegible]}$



$$\frac{BD}{FD} = \frac{۳۲}{۰/۰۵} = ۶$$

(۱۰



(۹

$$\frac{y}{a-x} = \frac{x}{a} = \frac{1}{4} \rightarrow \begin{cases} a = 4x \\ a - x = 4y \end{cases}$$

$$4x - x = 4y \rightarrow x = \frac{4}{3}y$$

$$4^2 = (a-x)^2 + a^2 \rightarrow x = \frac{4}{5},\ a = \frac{16}{5}$$

$$S_{\square} = a^2 = \frac{256}{25}$$