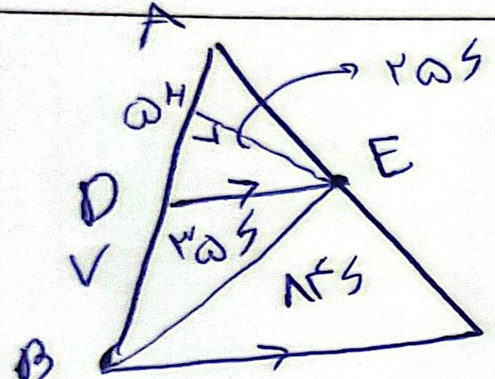
نام و نام خانوادگی ..آرمیتا حیدری..... پاسخنامه تشریحی تکلیف شماره ..۲۲.. کلاس ..یازدهم ریاضی.....



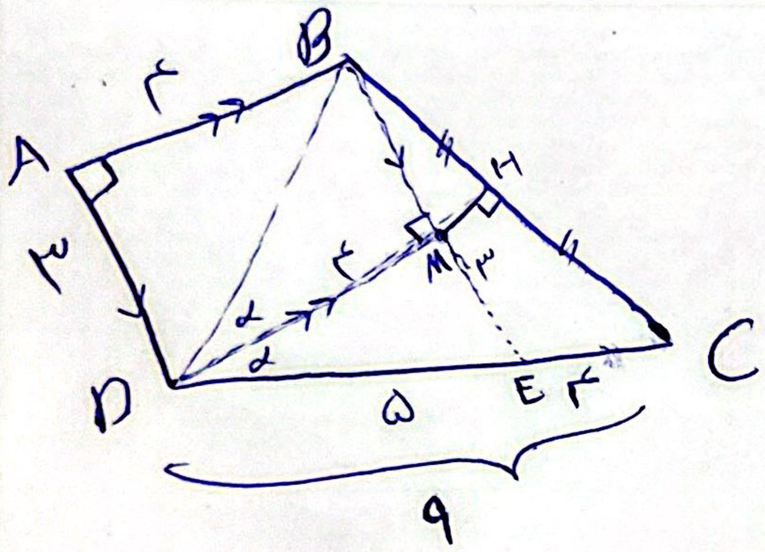
$DE \parallel BC \rightarrow A\hat{D}E \sim A\hat{B}C$

$\left(\frac{۵}{۱۲}\right)^۲ = \frac{S_{ADE}}{S_{ABC}} = \frac{۲۵}{۱۴۴}$

$\frac{A\hat{D}E \text{ و } B\hat{D}E}{\text{ارتفاع مشترک}} \rightarrow \frac{S_{ADE}}{S_{BDE}} = \frac{۱}{۲} \times \frac{AE}{HE} \times \frac{AD}{BD} = \frac{۵}{۷} = \frac{۲۵}{۳۵}$

$\left\{ \frac{S_{BCE}}{S_{BDE}} = \frac{۸۴S}{۳۵S} = \frac{۱۲}{۵} \right.$ ۲۴

۱



$\hat{M}_1 = \hat{M}_2 = 90^\circ$, $DM = DM$ $\Big\}$ وت $\longrightarrow$ $B\hat{D}M \cong D\hat{M}E$

$\downarrow$

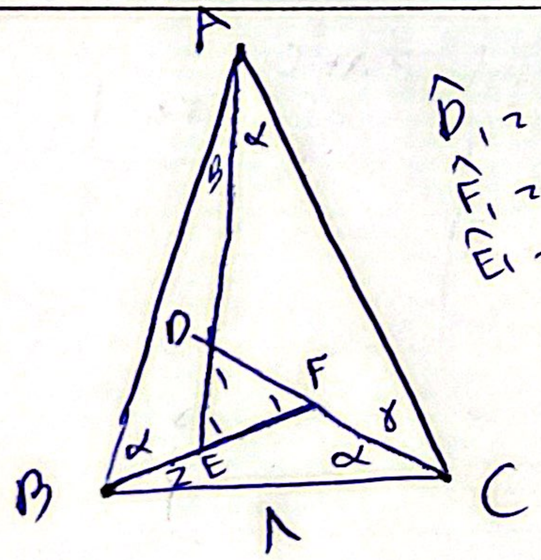
ض.ز.ض : $BM = ME$

M, H وسطا BE, BC $\longrightarrow$ $B\hat{M}H \sim B\hat{E}C$

$\hat{B} = \hat{B}$ $\downarrow$

ض.ز.ض : $\frac{BM}{BE} = \frac{MH}{EC}$ $\rightarrow$ $MH = ۲$

۲



$\hat{D}_1 = \alpha + \gamma = \hat{C}$

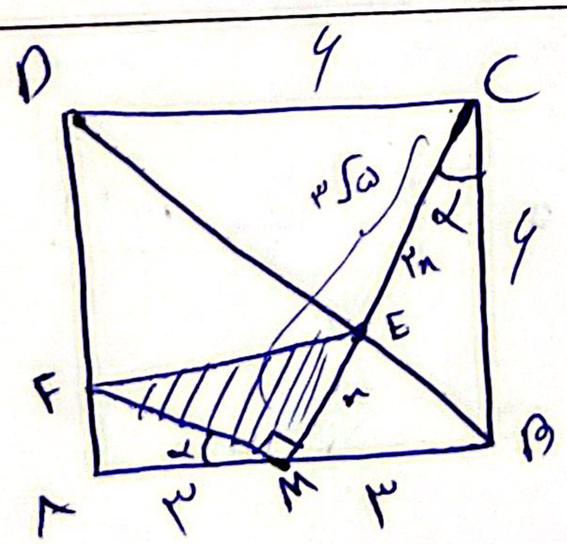
$\hat{F}_1 = \alpha + \beta = \hat{B}$

$\hat{E}_1 = \beta + \alpha = \hat{A}$ $\Longrightarrow$ $A\hat{B}C \sim D\hat{E}F$

$\downarrow$

ض.ز.ض : $\frac{AB}{EF} = \frac{BC}{DF}$ $\rightarrow$ $AB = ۹/۴$

۳



$\cos\alpha = \frac{۲}{۴} = \frac{۳}{FM}$

$\downarrow$

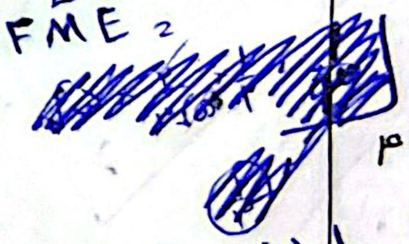
$FM = \frac{۳\sqrt{۵}}{۲}$

$DC \parallel MB \longrightarrow D\hat{C}E \sim M\hat{E}B$

$\downarrow$

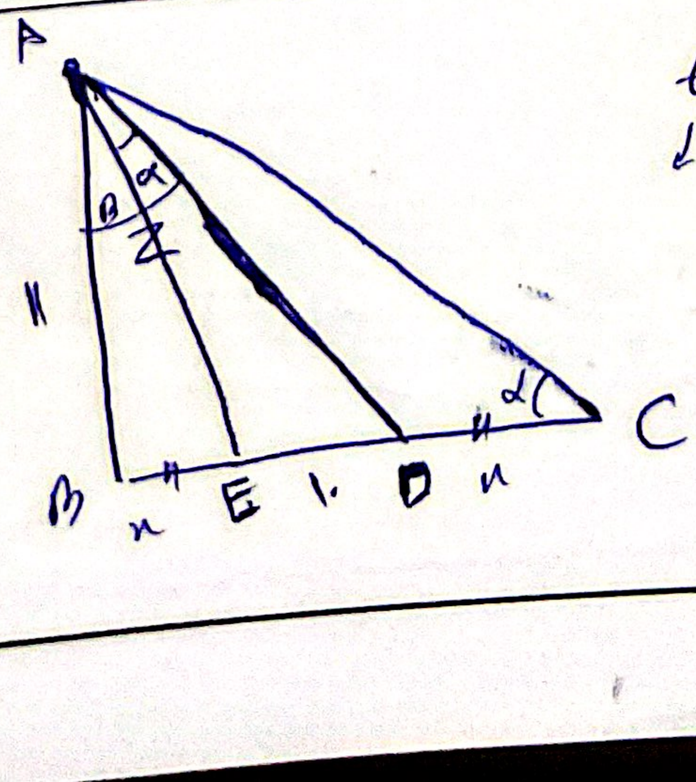
ض.ز.ض : $\frac{DC}{MB} = \frac{CE}{ME} = ۲$

$۳MB = ۳\sqrt{۵} \rightarrow MB = \sqrt{۵}$

$\left.\begin{array}{l} S_{FME} = \\ = \end{array}\right.$ 

$\frac{۳\sqrt{۵}}{۲} + \frac{\sqrt{۵}}{۲} = \frac{۱۰\sqrt{۵}}{۴}$

۴



$\tan(2\alpha - \beta) = \tan\alpha$ |

$\downarrow$

$\frac{\tan 2\alpha - \tan\beta}{1 + \tan 2\alpha \tan\beta} = \frac{۱۱}{۱۰+۲n}$ $=$ $\frac{\frac{۱۰+n}{۱۱} - \frac{n}{۱۱}}{1 + \frac{۱۰+n}{۱۱} \cdot \frac{n}{۱۱}}$ $=$ $\frac{۱۱۰}{n^۲+۱۰n+۱۲۱}$

$\frac{۱۱۰}{n^۲+۱۰n+۱۲۱} = \frac{۱۱۰}{۱۲۱+n^۲+۱۰n}$

$n^۲ + ۱۰n + ۱۲۱ = ۱۰n + ۲۱۰$

$\downarrow$

$n^۲ - ۱۰n + ۲۱ = ۰$

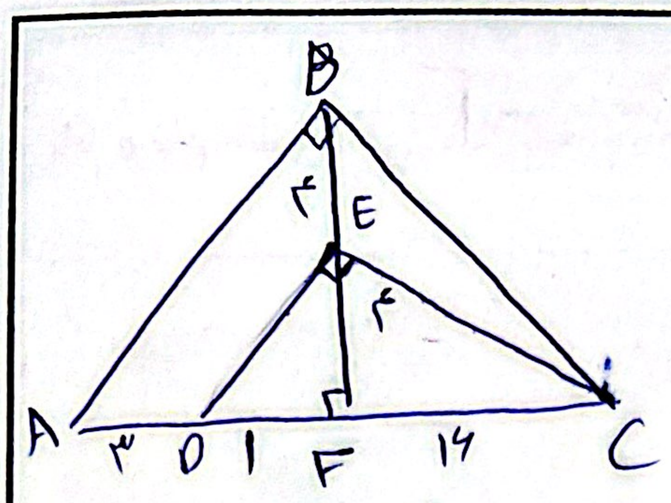
$\downarrow$

$(n-۳)(n-۷) = ۰$

$\downarrow$

$n = ۳$ ، $n = ۷$ $\rightarrow$ $DC = BE = ۱$

۵



روابط طولی در $\triangle ABC$ $\rightarrow BC^2 = FC \times AC \rightarrow BC = 8\sqrt{5}$

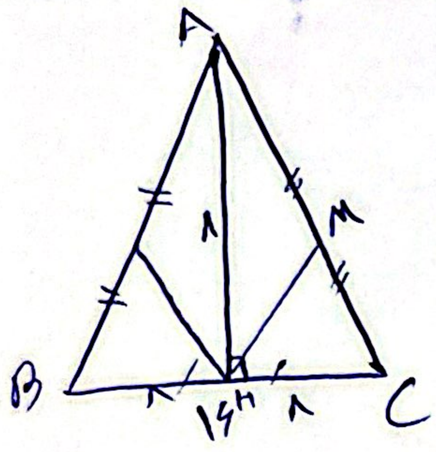
روابط طولی در $\triangle ABC$ $\rightarrow BF^2 = FC \cdot AF$

$BF = 8$

روابط طولی در $\triangle DEC$ $\rightarrow EF^2 = DF \cdot FC$

$16 = 1 \times FC$

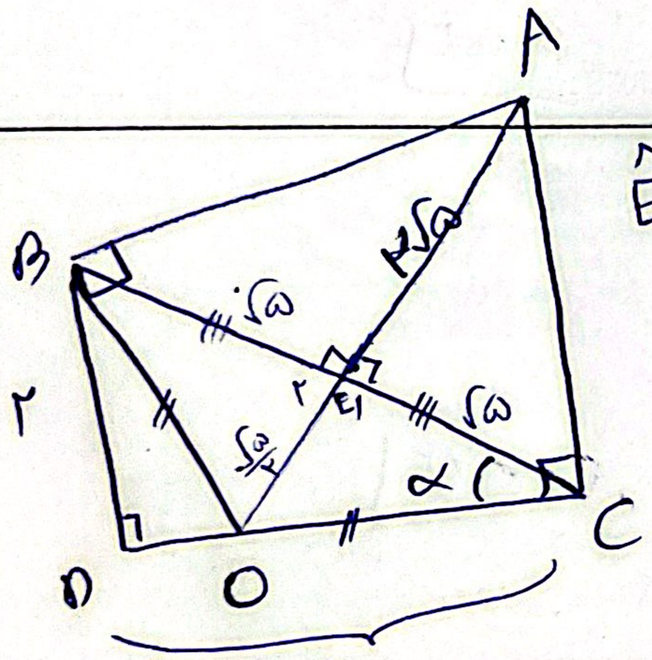
۶



$\triangle AHC \rightarrow AC = 8\sqrt{2}$

$\triangle AHC$ میانه وارد بر وتر نصف اندازه است $\rightarrow MH = \frac{AC}{2} = \frac{8\sqrt{2}}{2} \rightarrow MH = 4\sqrt{2}$

۲



$\hat{E}_1 = \hat{E}_2 = 90$ ، $OE = OE$ $\xrightarrow{\text{وتر}}$ $O\hat{E}C \cong O\hat{B}E$

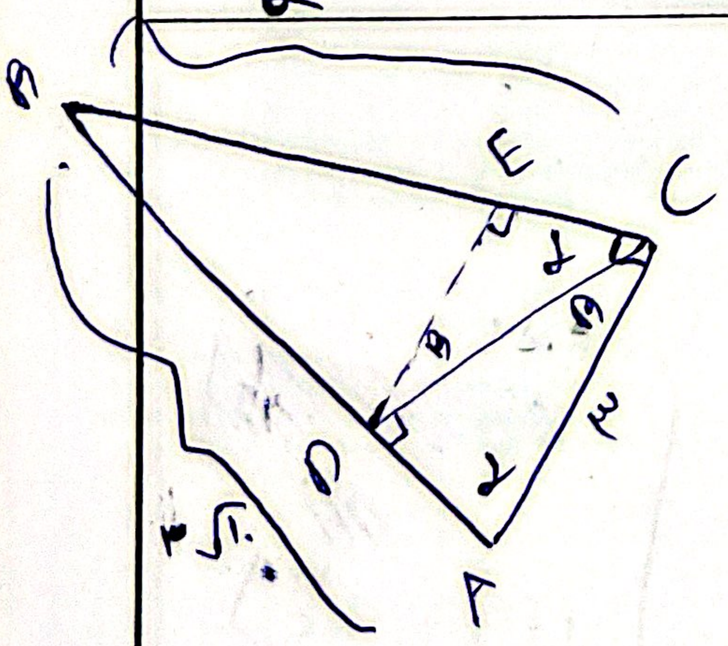
$\rightarrow BC = EC = 2\sqrt{5}$

$\triangle BDC$: $BC = 2\sqrt{5}$

$\tan\alpha = \frac{OE}{\sqrt{5}} = \frac{2}{4} = \frac{1}{2} \rightarrow OE = \frac{\sqrt{5}}{2}$

روابط طولی در $\triangle ABO$ $\rightarrow \frac{\sqrt{5}}{2} = \frac{1}{2} \times AE \rightarrow AE = 4\sqrt{5}$

$S_{\triangle ABE} = \frac{4\sqrt{5} \times \sqrt{5}}{2} = 10$ ۱

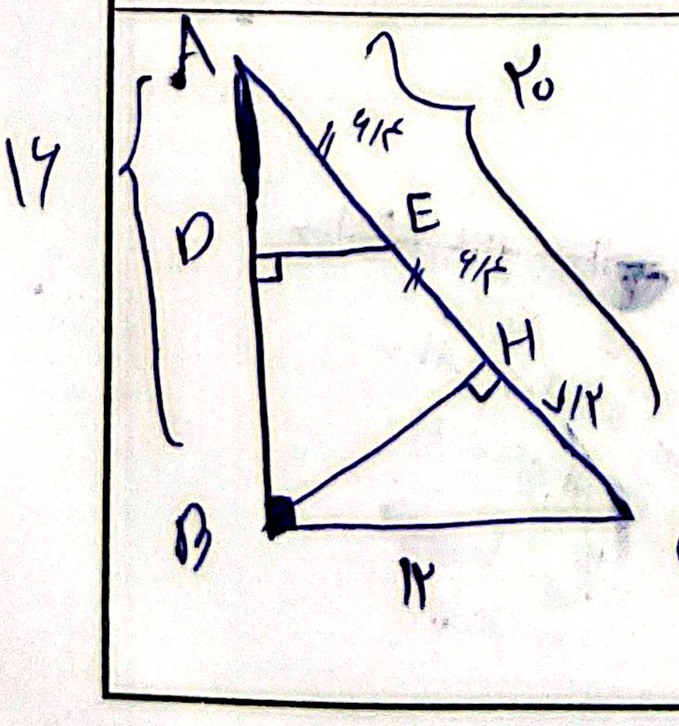


$\sin\alpha = \frac{9}{3\sqrt{10}} = \frac{3}{\sqrt{10}}$

$DC = 3\sin\alpha = \frac{9}{\sqrt{10}}$

$EC = DC \times \cos\alpha = \frac{9}{\sqrt{10}} \times \frac{3}{3\sqrt{10}} = \frac{9}{10}$

$\rightarrow BE = 9 - \frac{9}{10} = \frac{81}{10} = 8.1$ ۹



روابط طولی در $\triangle ABC$ $\rightarrow BC^2 = HC \times (AH + HC)$

$144 = HC \times 20$

$HC = 7/2$

$DE \parallel BC$ ، تالس $\rightarrow \frac{DE}{BC} = \frac{AE}{AC} \rightarrow DE = 3/8$ ۱۰

$DE \perp AB$, $BC \perp AB$ $\rightarrow$ در $\triangle ABC$