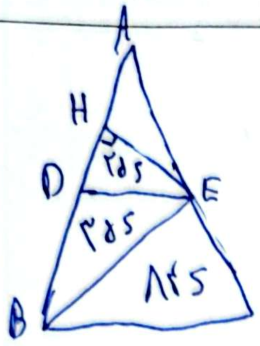
نام و نام خانوادگی ...فرهام فروزنده... پاسخنامه تشریحی تکلیف شماره ...۲۲... کلاس ...یازدهم تجربی B...

۱



$DE \parallel BC \longrightarrow \overset{\triangle}{ADE} \sim \overset{\triangle}{ABC}$

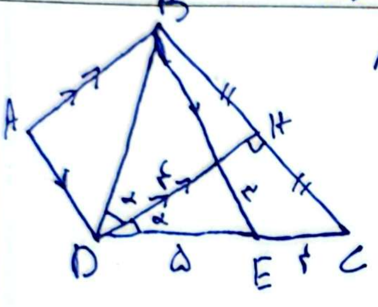
$\left(\frac{5}{12}\right)^2 = \frac{S_{ADE}}{S_{ABC}} = \frac{25}{144}$

$\Rightarrow \frac{S_{BCE}}{S_{BDE}} = \frac{84}{35} = \frac{12}{5}$

2.4

$C \xrightarrow[\text{ارتفاع مشترک}]{ADE,\ BDE} \frac{S_{ADE}}{S_{BDE}} = \frac{\frac{1}{2}}{\frac{1}{2}} \times \frac{ME}{HE} \times \frac{AD}{BD} = \frac{5}{7} = \frac{25}{35}$

۲



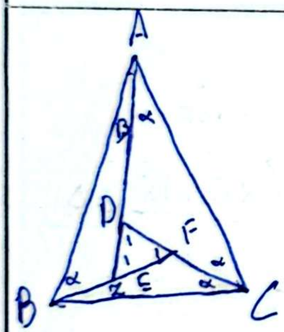
$M_1 = M_2 = 90$, $DM = BM$ وض $\Rightarrow \overset{\triangle}{BDM} \cong \overset{\triangle}{DME} \to DM = ME$

س.ا.م

M, H وسط BE, BC $\longrightarrow \overset{\triangle}{BMH} \sim BEC$

$\hat{B} = \hat{B}$ (س.ا.م) $\to \frac{BM}{BE} = \frac{MH}{EC} \Rightarrow MH = 3$

۳



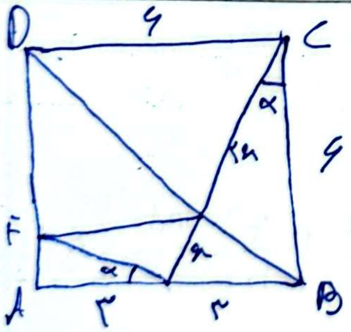
$D_1 = \alpha + \gamma = \hat{C}$

$F_1 = \alpha + Z = \hat{B} \xrightarrow{\text{زز}} \overset{\triangle}{ABC} \sim DEF$

$E_1 = \beta + \alpha = \hat{A}$

(س.ا.م) $\frac{AB}{EF} = \frac{DC}{DF} \Rightarrow AB = 9.6$

۴



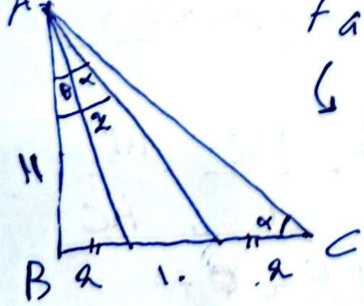
$\cos\alpha = \frac{6}{3\sqrt{5}} = \frac{3}{FM} \Rightarrow FM = \frac{3\sqrt{5}}{2}$

$6 \quad DC \parallel MB \to \overset{\triangle}{DCE} \sim \overset{\triangle}{MEB}$

$\longrightarrow$ (س.ا.م) $\frac{DC}{MB} = \frac{CE}{ME} = 2$

$\Rightarrow 3x = 3\sqrt{5} \Rightarrow \boxed{x = \sqrt{5}}$

۵



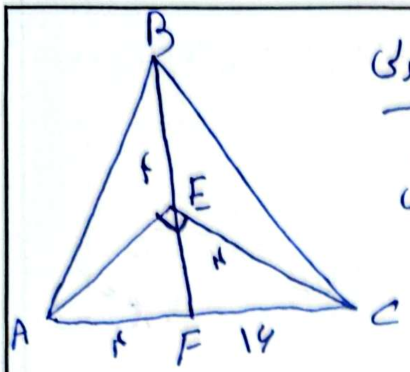
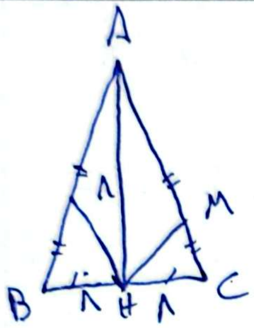
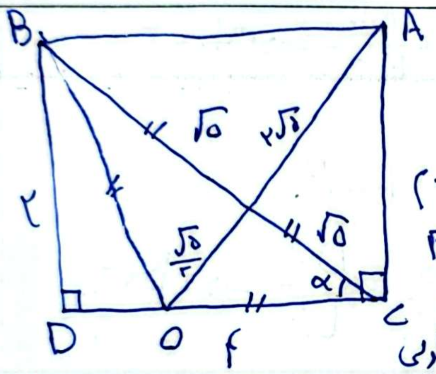
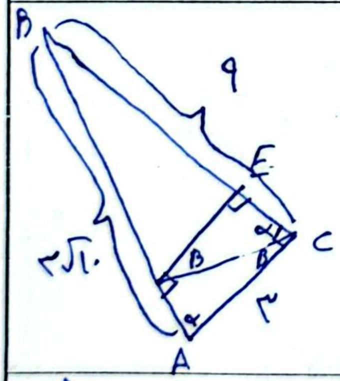
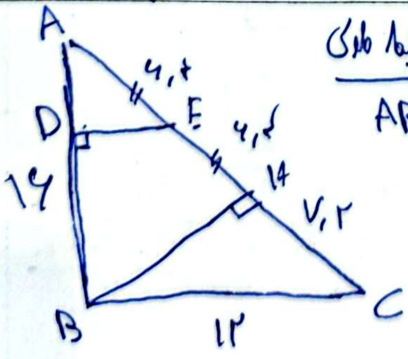
$\tan_{x-\beta} = \tan\alpha$

$\frac{\tan x - \tan\beta}{1 + \tan x \tan\beta} = \frac{11}{10 + 2x} = \frac{\frac{10+x}{11} - \frac{x}{11}}{1 + \frac{10+x}{11} \cdot \frac{x}{11}} = \frac{\frac{10}{11}}{\frac{121 + x^2 + 10x}{121}}$

$\Rightarrow x^2 + 10x + 121 = 110 + 20x$

$\Rightarrow x^2 - 10x + 21 = 0 \Rightarrow (x-3)(x-7) = 0$

$\Rightarrow x = 3,\ x = 7 \to DC = BE = \boxed{8}$

	$\xrightarrow[\overset{\triangle}{ABC}]{\text{روابط طولی}} BC^{۲} = \overset{۱۶}{FC} \times \overset{۲۰}{AC} \to BC = ۸\sqrt{۵}$ $\xrightarrow[\overset{\triangle}{ACB}]{\text{روابط طولی}} BF^{۲} = \overset{۱۶}{FC} \times \overset{۴}{AF} \Rightarrow BF = ۸$	۶
	$\overset{\triangle}{AHC} \to AC = ۸\sqrt{۲}$ $\overset{\triangle}{AHC} \xrightarrow[\text{بر وتر}]{\text{میانه وارد}} \frac{AC}{۲} = MH \to MH = ۴\sqrt{۲}$	۷
	$\left.\begin{array}{l} E_۱ = E_۲ = ۹۰ \\ OE = OE \end{array}\right\} \xrightarrow{\text{وض}} \overset{\triangle}{OEC} \cong \overset{\triangle}{OBE}$ $(۱،۲\ \text{س}) = EC = BE$ $\overset{\triangle}{BDC} = BC = ۲\sqrt{۵}$ $\tan\alpha = \frac{OE}{\sqrt{۵}} = \frac{۲}{۴} = \frac{۱}{۲} \to OE = \frac{\sqrt{۵}}{۲}$ $\xrightarrow{\text{روابط طولی}} ۵ = \frac{\sqrt{۵}}{۲} \times AE \Rightarrow AE = ۲\sqrt{۵}$ $S_{\overset{\triangle}{ABE}} = \frac{۲\sqrt{۵} \times \sqrt{۵}}{۲} = ۵$ پنج	۸
	$\sin\alpha = \frac{۹}{۳\sqrt{۱۰}} = \frac{۳}{\sqrt{۱۰}}$ $DC = ۳\sin\alpha = \frac{۹}{\sqrt{۱۰}}$ $EC = DC \times \cos\alpha = \frac{۹}{۱۰} \to BE = ۹ - \frac{۹}{۱۰} = \frac{۸۱}{۱۰} = ۸٫۱$	۹
	$\xrightarrow[ABC]{\text{روابط طولی}} BC^{۲} = HC \times (AH + HC) \Rightarrow HC = ۷٫۲$ $\left.\begin{array}{l} DE \perp AB \\ BC \perp AB \end{array}\right. \xrightarrow{\overset{\triangle}{ABC}} \xrightarrow[\text{تالس ۲}]{BE \parallel BC} \frac{BE}{BC} = \frac{AE}{AC}$ $\to DE = ۳٫۸۴$	۱۰