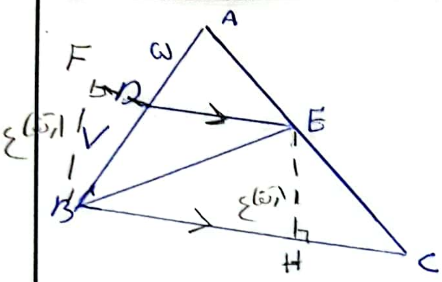
نام و نام خانوادگی ....سیبا حنیفی........ پاسخنامه تشریحی تکلیف شماره ..۲۲.. کلاس ..یازدهم دختران گروه B..

۱

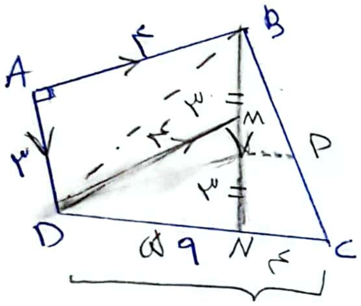


$$\frac{S_{BCE}}{S_{BDE}} = ? \Rightarrow \frac{\cancel{\frac{1}{2}}\, EH \cdot BC}{\cancel{\frac{1}{2}}\, BF \cdot DE} = \frac{BC}{DE}$$

$$\frac{DE}{BC} = \frac{AD}{AB} \Rightarrow \frac{DE}{BC} = \frac{۵}{۱۲} \Rightarrow \frac{BC}{DE} = \frac{۱۲}{۵}$$

$$\Rightarrow ۲/۴$$

۲



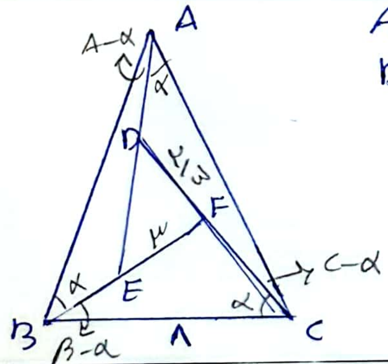
$$B\hat{D}C = ۲ B\hat{D}M$$

$$BD = ۳^۲ + ۴^۲ = ۵^۲$$

$$MD = ۲ \quad BM = ۳$$

$$\frac{MP}{NC} = \frac{BM}{BN} \Rightarrow \frac{MP}{۴} = \frac{\cancel{BM}}{\cancel{BN}} = \frac{۳}{۶} \Rightarrow MP = ۲$$

۳



$$A\hat{B}F = C\hat{A}E = B\hat{C}D \qquad AB = ?$$

$$DF = ۲/۵ \ , \ EF = ۳$$

$$F\hat{D}E \rightarrow A\hat{D}C \Rightarrow FDE = C - \alpha + \alpha = C$$

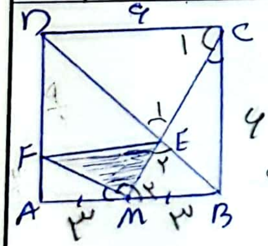
زاویه خارجی

$$E\hat{F}D \rightarrow E\hat{B}C \Rightarrow EFD \Rightarrow B - \alpha + \alpha = B$$

$$DEF \rightarrow A\hat{B}E \Rightarrow DEF = A - \alpha + \alpha = A$$

$$A\hat{B}C \simeq DEF \Rightarrow \frac{۳}{AB} = \frac{\frac{۵}{۲}}{۸} \Rightarrow AB = \frac{۴۸}{۵}$$

۴



$$B\hat{C}E = A\hat{M}F \qquad S_{F\hat{M}E} = ?$$

ارتفاع مثلث مورد نظر

$$\left.\begin{matrix}\hat{C} = \hat{M} \\ \hat{A} = \hat{B} = ۹۰\end{matrix}\right\} \Rightarrow M\hat{A}F \sim C\hat{B}M \Rightarrow \frac{AM}{CB} = \frac{FM}{CM} \Rightarrow \frac{۳}{۶} = \frac{FM}{۳\sqrt{۵}} \Rightarrow \frac{۳\sqrt{۵}}{۲}$$

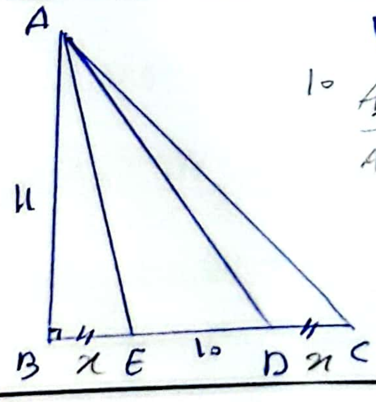
$$CM = \sqrt{۶^۲ + ۳^۲} = \sqrt{۴۵} = ۳\sqrt{۵}$$

$$\left.\begin{matrix}E_1 = E_2 \\ C_1 = M_2\end{matrix}\right\} \Rightarrow MEB \sim EDC \Rightarrow \frac{MB}{CD} \Rightarrow \frac{EM}{CE} = \frac{۱}{۲}$$

$$S = \frac{\frac{۳\sqrt{۵}}{۲} \times \sqrt{۵}}{۲} \Rightarrow = \frac{۱۵}{۴}$$

$$۹ + ۳۶ = MC^۲ \Rightarrow MC = ۳\sqrt{۵} \Rightarrow ۲EM = CE \Rightarrow ۳EM = ۳\sqrt{۵} \Rightarrow EM = \sqrt{۵}$$

۵

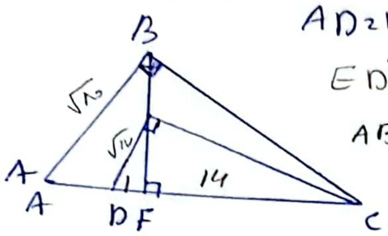


$$D\hat{A}E = A\hat{C}D \qquad BE = DC$$

$$\frac{AB}{AE} = \frac{AE}{x+10} \rightarrow 100 + 10x = AE^۲$$

$$AE^۲ = ۱۲۱ + x^۲ \rightarrow 100 + 10x = ۱۲۱ + x^۲$$

$$x = ۳ \ , \ x = ۷$$



$A\hat{B}C = C\hat{E}D = 90$ $\quad BC = ?$

$AD = 3 \quad EF = 4 \quad DF = 1$

$ED^2 = DE \times DC \Rightarrow FC = 16 \qquad ABC \sim BAF$

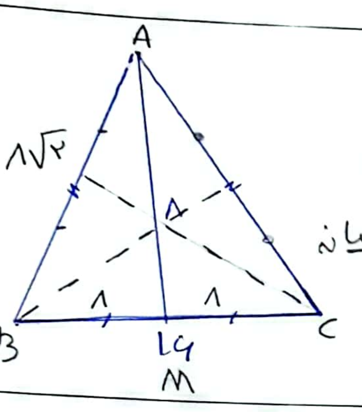
$AB^2 + BC^2 = AC^2$

$80 + BC^2 = 400$

$BC = \sqrt{320}$

$\frac{FA}{BA} = \frac{AB}{AC} = \frac{FB}{BC}$

$\frac{4}{BA} = \frac{BA}{20} \Rightarrow BA = \sqrt{80}$ ۶

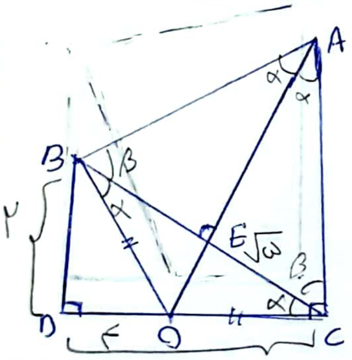


$AB^2 = AM^2 + BM^2$

$BC = 16 \quad AB = 8\sqrt{2} = AC$

فرمول میانه $\Rightarrow m = \frac{1}{2}\sqrt{(8\sqrt{2})^2 \times 2 + 2 \times (8\sqrt{2})^2 - 16^2}$ ۷

$\Rightarrow \frac{1}{2}\sqrt{512 - 256} \Rightarrow \frac{1}{2}(16) = 8$ اندازه میانه های دیگر



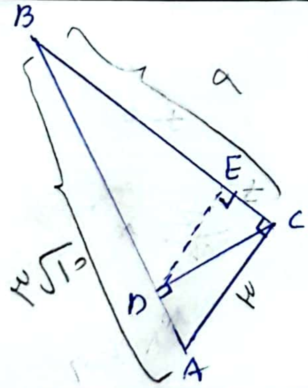
$CD = 4 \quad BD = 2 \quad S_{ABE} = ?$

$BD^2 + DC^2 = BC^2 \Rightarrow BC = 4 + 16 = \sqrt{20}$

$CE = \frac{2\sqrt{5}}{\cancel{2}} = \sqrt{5}$ ۸

$\alpha + \beta = 90 \Rightarrow \tan\beta = \frac{AE}{\sqrt{5}} = \cot\alpha = \frac{4}{2} = 2 \Rightarrow AE = 2\sqrt{5}$

$S_\Delta = \frac{2\sqrt{5} \times \sqrt{5}}{2} = 5$



$AC = 3 \quad BC = 9 \quad BE = ?\ 8.1$

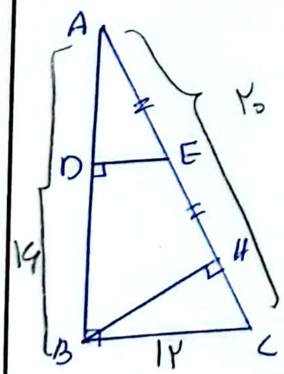
$9^2 + 3^2 = 90 \qquad BA = \sqrt{90}$

$BC^2 = BD \times BA \Rightarrow 81 = BD \times 3\sqrt{10}$ ۹

$BD = \frac{27\sqrt{10}}{10}$

$BD^2 = BE \times BC \Rightarrow \left(\frac{27\sqrt{10}}{10}\right)^2 = BE \times 9 \Rightarrow BE = \frac{27 \times 27}{9 \times 10}$

8.1



$AB = 16 \quad BC = 12 \quad DE = ?$

$16^2 + 12^2 = 20^2$

$BC^2 = CH \times AC \Rightarrow CH = \frac{12 \times 12}{20} = 7.2$ ۱۰

$AH = AC - CH \Rightarrow 20 - 7.2 = 12.8 \xRightarrow{AE = EH} \frac{12.8}{2} = 6.4$

$\frac{DE}{BC} = \frac{AE}{AC} \Rightarrow \frac{DE}{12} = \frac{6.4}{20} \Rightarrow DE = 3.84$