نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲۲ ... کلاس ...

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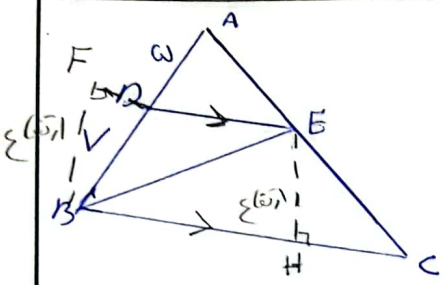

$\frac{S_{BCE}}{S_{BDE}} = 5 \Rightarrow \frac{\frac{1}{2} EH \cdot BC}{\frac{1}{2} BF \cdot DE} = \frac{BC}{DE}$

$\frac{DE}{BC} = \frac{AD}{AB} \Rightarrow \frac{DE}{BC} = \frac{5}{12} \Rightarrow \frac{BC}{DE} = \frac{12}{5}$

$\Rightarrow$ ۲/۴

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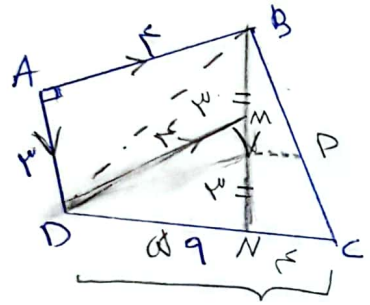

$B\hat{D}C = 2B\hat{D}M$

$BD = \sqrt{3^2 + 4^2} = 5$

$MD = 4 \quad BM = 3$

$\frac{MP}{NC} = \frac{BM}{BN} \Rightarrow \frac{MP}{4} = \frac{3}{4} \Rightarrow MP = 3$

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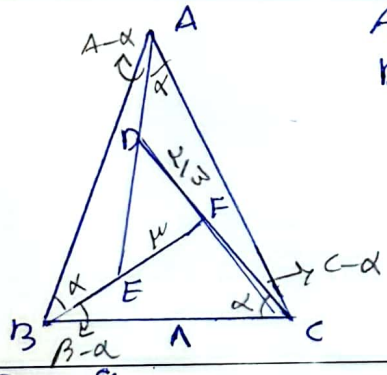

$A\hat{B}F = C\hat{A}E = B\hat{C}D \quad AB = ?$

$DF = 2\sqrt{3}, \quad EF = 2$

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

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

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

$A\hat{B}C \sim DEF \Rightarrow \frac{3}{AB} = \frac{2}{4} \Rightarrow AB = 6$

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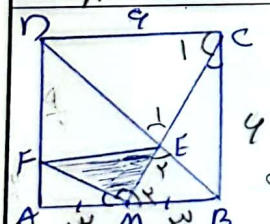

$B\hat{C}E = A\hat{M}F \quad S_{FME} = ?$

ارتفاع مثلث مورد نظر

$\left.\begin{matrix} C = M \\ A = B = 90 \end{matrix}\right\} \Rightarrow MAF \sim CBM \Rightarrow \frac{AM}{CB} = \frac{FM}{CM} \Rightarrow \frac{3}{4} = \frac{FM}{3\sqrt{3}} \Rightarrow \frac{3\sqrt{3}}{2}$

$CM = \sqrt{4^2 + 3^2} = \sqrt{25} = 3\sqrt{3}$

$\left.\begin{matrix} E_1 = E_2 \\ C_1 = M_2 \end{matrix}\right\} \Rightarrow MEB \sim EDC \Rightarrow \frac{MB}{CD} \Rightarrow \frac{EM}{CE} = \frac{1}{2}$

$S = \frac{\frac{3\sqrt{3}}{2} \times \sqrt{3}}{2} = \frac{9}{4}$

$9 + 27 = MC^2 \Rightarrow MC = 3\sqrt{3} \Rightarrow 2EM = CE \Rightarrow 2EM = 2\sqrt{3} \Rightarrow EM = \sqrt{3}$

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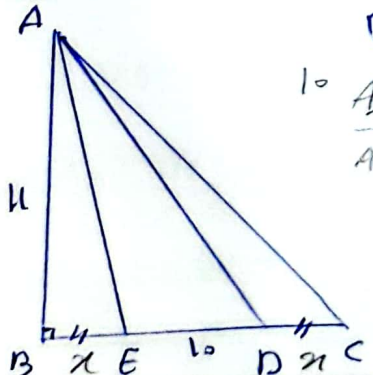

$D\hat{A}E = A\hat{C}D \quad BE = DC$

$\frac{AB}{AE} = \frac{AE}{x+10} \Rightarrow 100 + 10x = AE^2$

$AE^2 = 121 + x^2 \Rightarrow 100 + 10x = 121 + x^2$

$x = 3, \quad x = 7$

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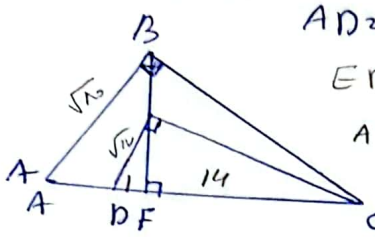
$A\hat{B}C = C\hat{E}D = 90$ $\quad BC = ?$

$AD = 12$ $\quad EF = 4$ $\quad DF = 1$



$ED^2 = DE \times DC \Rightarrow FC = 14$ $\quad ABC \sim BAF$

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

$80 + BC^2 = 400$

$BC = \sqrt{320}$

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

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

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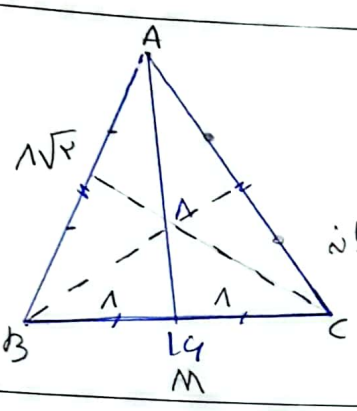

$AB^2 = AM^2 + BM^2$

$BC = 14$ $\quad AB = 8\sqrt{2} = AC$

فرمول میانه $\Rightarrow m = \frac{1}{2}\sqrt{(8\sqrt{2})^2 \times 2 + 2 \times (8\sqrt{2})^2 - 14^2}$

$\Rightarrow \frac{1}{2}\sqrt{324 - 289} \Rightarrow \frac{1}{2}(14) = 8$ پس میانه وتر است

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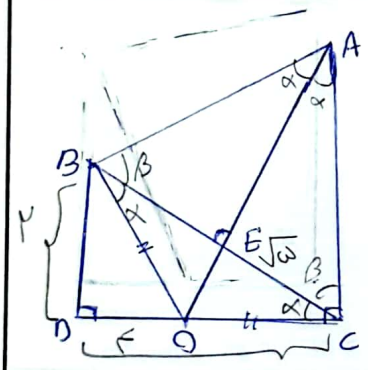

$CD = 4$ $\quad BD = 2$ $\quad S_{ABE} = ?$

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

$CE = \frac{4\sqrt{5}}{2} = 2\sqrt{5}$

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

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

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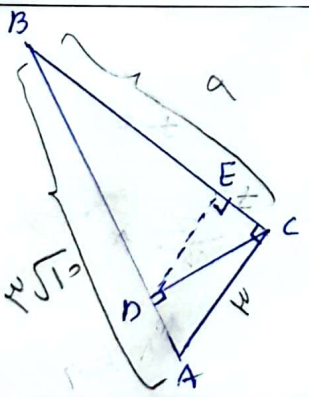

$AC = 3$ $\quad BC = 9$ $\quad BE = ?$ $\quad 81$

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

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

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

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

$\frac{81}{10}$

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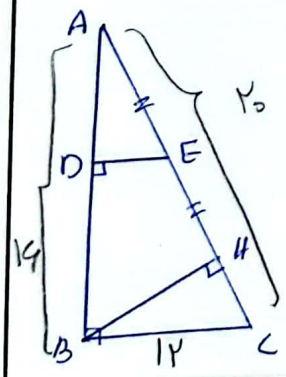

$AB = 14$ $\quad BC = 12$ $\quad DE = ?$

$14^2 + 12^2 = 20^2$

$BC^2 = CH \times AC \Rightarrow CH = \frac{144 \times 4}{20} = 7.2$

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

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

$a^2 + a^2 = 14^2 \rightarrow a = 7\sqrt{2}$

$x^2 = (7\sqrt{2})^2 + (4\sqrt{2})^2 \rightarrow x = 4\sqrt{10}$

(V