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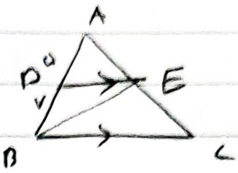
ستایش جندی   یازدهم تجربی

①

$DE \parallel BC \rightarrow \frac{AB}{AD} = \frac{AC}{AE} = \frac{BC}{DE} = \frac{12}{5}$

$\frac{S_{B\overset{\triangle}{C}E}}{S_{BDE}} = \frac{\frac{1}{2} \times h \times BC}{\frac{1}{2} \times h \times DE} = \frac{12}{5} = 2{,}4$



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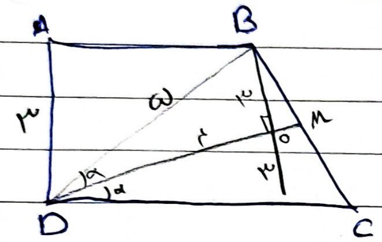
②



$\hat{A} = 90 \Rightarrow ABMD$ مستطیل $\rightarrow DM = 4 \quad BM = 3$

$\hat{D}_1 = \hat{D}_2 \Rightarrow M\hat{D}B, M\hat{D}F$ ... $\rightarrow$ همنهشت $\rightarrow MF = BM = 3$

$DF = 5 \quad FC = 4$

$\frac{BM}{BF} = \frac{MO}{FC} = \frac{3}{6} = \frac{1}{2} \rightarrow MO = 2$

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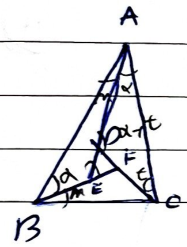
③



$F = E$

$\left.\begin{array}{l} \hat{F} = \hat{B} \\ \hat{D} = \hat{C} \\ \hat{E} = \hat{A} \end{array}\right\} \Rightarrow \frac{AB}{3} = \frac{8}{2{,}5} \rightarrow 2{,}5\,AB = 24$

$AB = 9{,}6$

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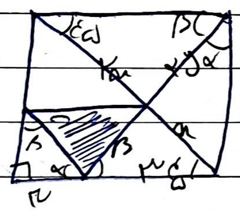
④



$\triangle AMB = \frac{AM}{AF} = \frac{BC}{MB} = \frac{3}{AF} = 2 \rightarrow AF = \frac{3}{2}$

$MF = \sqrt{(\frac{3}{2})^2 + 3^2} = \sqrt{\frac{45}{4}} = \frac{3\sqrt{5}}{2}$

$\left.\begin{array}{l} \hat{E}_1 = \hat{E}_2 \\ DC\hat{E} = B\hat{M}E \end{array}\right\} \rightarrow \overset{\triangle}{DCE} \sim \overset{\triangle}{MEB} \rightarrow \frac{6}{3} = 2 \rightarrow 3y = \sqrt{...}$

$S_{FEM} = \frac{1}{2} \times MF \times EM = \frac{1}{2} \times \frac{3\sqrt{5}}{2} \times \sqrt{5} = \boxed{\frac{15}{4}} \quad y = \sqrt{5} \quad c = 3\sqrt{5}$

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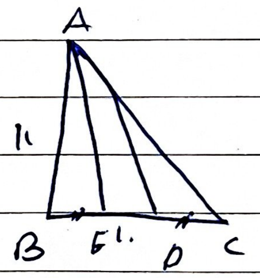
⑤



$11^2 + x^2 \Rightarrow AE = \sqrt{121 + x^2}$

$AEC \sim ACD \rightarrow \frac{AE}{ED} = \frac{EC}{AE} \Rightarrow AE^2 = ED \times EC$

$121 + x^2 = ED \times EC \rightarrow 121 + x^2 = 100 + 10x$

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

$x = 3 \quad x = 7$ ✓

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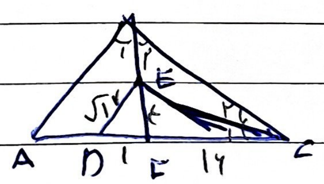
⑥



$EF^2 = DF \times FC \rightarrow 16 = 1 \times FC \rightarrow FC = 16$

$ED = \sqrt{16+1} = \sqrt{17} \qquad 16^2 - (\sqrt{17})^2 = EC^2 \rightarrow EC = 4\sqrt{17}$

$BF^2 = AF \times FC = 4 \times 16 \rightarrow BF = 8$

$BC^2 = 8^2 + 16^2 = 320 \rightarrow BC = 8\sqrt{5}$

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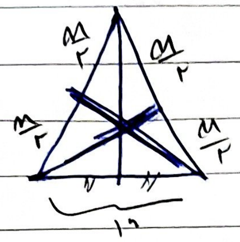
Subject .... Date ....

سوال (۷)



میانه وارد بر وتر نصف وتر است با توجه به قضیه [illegible] زاویه

$m^2 = 8^2 + 16^2 \longrightarrow m = 8\sqrt{2}$

$\sqrt{(8\sqrt{2})^2 + (4\sqrt{2})^2} = 4\sqrt{10}$

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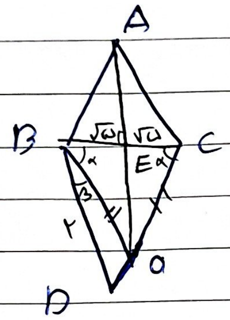

$BC = \sqrt{16+4} = 2\sqrt{5}$ $\qquad BE = BC = \sqrt{5}$

$\frac{2}{\sqrt{5}} = \frac{4}{AE} \longrightarrow AE = 2\sqrt{5}$

$S_{ABE} = \frac{AE \times BE}{2} = \frac{2\sqrt{5} \times \sqrt{5}}{2} = 5$

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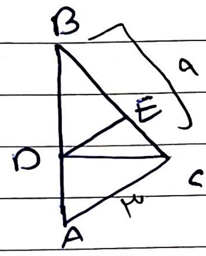

$AB = \sqrt{81+9} = 3\sqrt{10}$

$AC^2 = AD \times AB \Rightarrow 9 = AD \times 3\sqrt{10} \longrightarrow AD = 0.3\sqrt{10}$

$BD = 3\sqrt{10} - 0.3\sqrt{10} = 2.7\sqrt{10}$

$\left.\begin{matrix} DE \perp BC \\ AC \perp BC \end{matrix}\right\} \to DE \parallel AC \longrightarrow \frac{BE}{BC} = \frac{BD}{AD}$

$\frac{BE}{9} = \frac{2.7\sqrt{10}}{3\sqrt{10}} \longrightarrow BE = 8.1$

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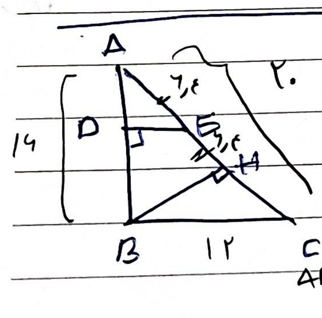

$AC = \sqrt{16^2 + 12^2} = 20$

$BC^2 = CH \times AC \Rightarrow 144 = CH \times 20 \longrightarrow CH = 7.2$

$AE = EH = 6.4$

تالس در ABC $\longrightarrow \frac{DE}{12} = \frac{6.4}{20} \longrightarrow DE = 3.84$