نام و نام خانوادگی ...فراز شیرانی...... پاسخنامه تشریحی تکلیف شماره ..۲۲.. کلاس ..یازدهم ریاضی A..

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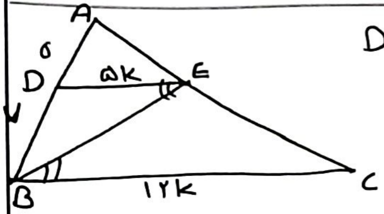
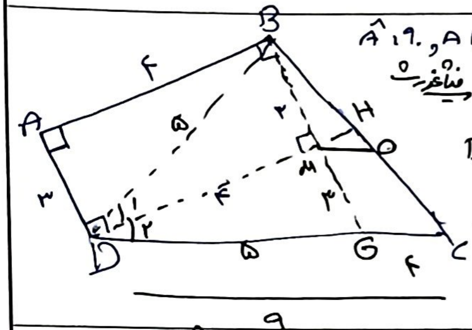


$DE \parallel BC \longrightarrow \frac{AD}{AB} = \frac{DE}{BC} \longrightarrow \frac{DE}{BC} = \frac{5}{12} \rightarrow DE = 5k,\ BC = 12k$

$S_{BDE} = \frac{1}{2}\, 5k \times BE \times E \xrightarrow{\hat{E} = \hat{B}} \frac{S_{BDE}}{S_{BEC}} = \frac{5}{12}$

$S_{BEC} = \frac{1}{2}\, 12k \times BE \times B$

۲



$\hat{A} = 90$ و $AB \parallel DM$ و $AD \nparallel BM \rightarrow ABMD =$ مستطیل

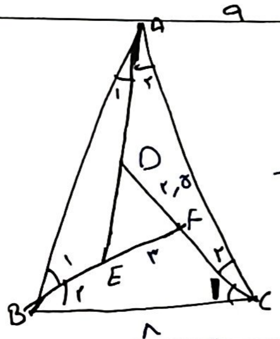
$\xrightarrow{\text{فیثاغورث}} \sqrt{3^2+4^2} = BD \longrightarrow BD = 5$

$D_1 = D_2 \rightarrow B\hat{D}M \cong D\hat{G}M \longrightarrow DG = 5,\ GM = 3$

BG وسط M و BC وسط $O \longrightarrow MO \parallel GC$

$\longrightarrow \frac{BM}{BG} = \frac{BO}{BC} = \frac{OM}{GC} \rightarrow \frac{1}{2} = \frac{OM}{4} \rightarrow \boxed{OM = 2}$

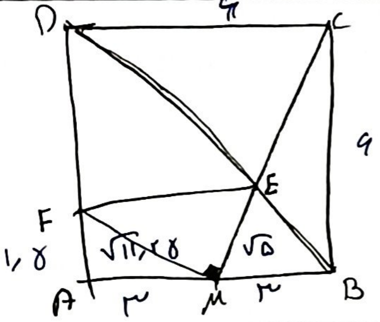
۳



$B_1 + A_1 = E \xrightarrow{B_1 = A_2} \hat{E} = A_2$ و طرفه متشابه $F = B$ و $D = C$

$\longrightarrow \frac{AB}{3} = \frac{8}{2.5} \rightarrow AB = 9.6 \qquad \rightarrow DFE \sim ABC$

۴



$AFM \sim MBC \rightarrow \frac{AF}{3} = \frac{3}{6} \rightarrow AF = 1.5$

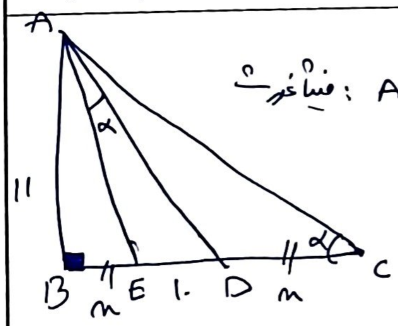
$\xrightarrow{\text{فیثاغورث}} 3^2 + 1.5^2 = MF^2 \rightarrow MF = \sqrt{11.25}$

$MFB \sim BEC \longrightarrow 2ME = EC \rightarrow ME = \frac{MC}{3}$

$\rightarrow MC = 3\sqrt{5} \rightarrow ME = \sqrt{5}$

$\rightarrow S_{FEM} = \frac{\sqrt{5} \times \sqrt{11.25}}{2} = 3.75$

۵

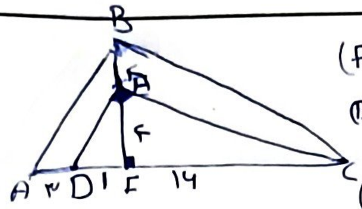


فیثاغورث: $AE = \sqrt{121 + x^2}$ | $AED \sim AEC \rightarrow \hat{E} = \hat{E},\ \hat{C} = \hat{A}$

$\longrightarrow \frac{\sqrt{121+x^2}}{10+x} = \frac{10x}{\sqrt{121+x^2}} \longrightarrow 121 + x^2 = 100 + 10x$

$\longrightarrow x^2 - 10x + 21$

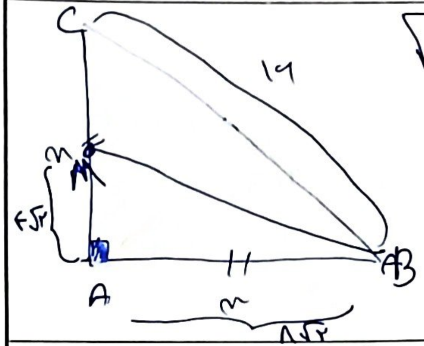
$\longrightarrow (x-7)(x-3) = 0 \longrightarrow x = 7,\ x = 3$



$(FE)^2 = DF \times FC \to 16 = 1 \times FC \to FC = 16$

$(BF)^2 = (AF)\times FC \to BF = \sqrt{4\times 16} = 8 \to BE = 4$

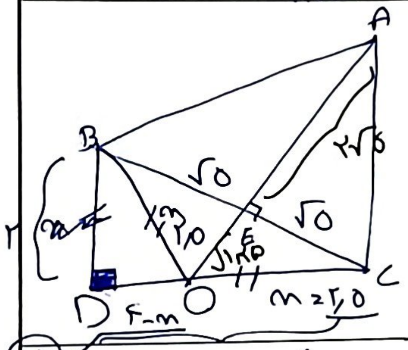
$(BC)^2 = FC \times AC \to BC = \sqrt{16\times 20} = 8\sqrt{5}$ ۶



$\sqrt{2x^2} = 256 \to x = 8\sqrt{2}$

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

$\to BM = \sqrt{128+32} = \sqrt{160} = 4\sqrt{10}$ ۷



$OC = OB = x$

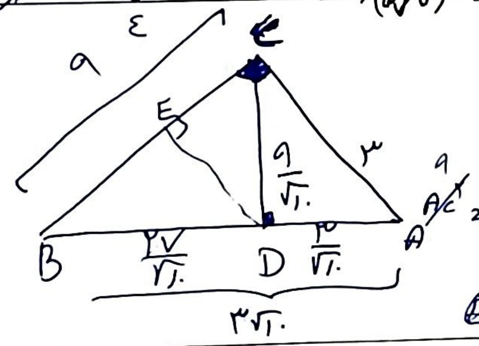
$\to 4 + 16 - 8x + x^2 = x^2 \to x = 2{,}5$

فیثاغورث $BDC: \to 2^2 + 4^2 = BC^2 \to B = 2\sqrt{5}$ ۸

$OC = OB \to$ روی عمود منصف $\to BE = EC = \frac{2\sqrt{5}}{2} = \sqrt{5}$

فیثاغورث: $OBE: (\sqrt{5})^2 + OE^2 = (2{,}5)^2 \to OE = \sqrt{1{,}25}$

~~$\to (\sqrt{5})^2 = \sqrt{1{,}25} \times AE \to AE = 4\sqrt{5} \to S_{AEB} = \frac{4\sqrt{5} \times \sqrt{5}}{2}$~~ ۵

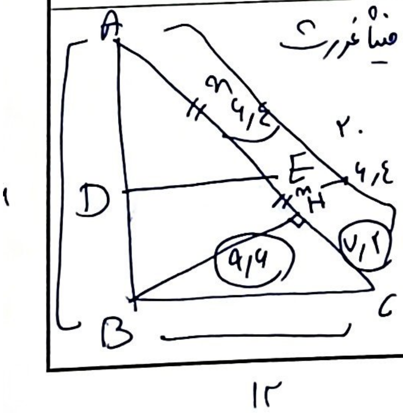


$9^2 + 3^2 = (AB)^2 \to AB = 3\sqrt{10}$

$DC = \frac{3\times 9}{3\sqrt{10}} = \frac{9}{\sqrt{10}}$ ۹

$AC^2 = AD \times AB \to AD = \frac{3}{\sqrt{10}} \to BD = 3\sqrt{10} - \frac{3}{\sqrt{10}} = \frac{27}{\sqrt{10}}$

$(BD)^2 = BC \times EB \to (\frac{27}{\sqrt{10}})^2 = 9 \times EB \to EB = \frac{81}{10}$



فیثاغورث: $(16)^2 + (12)^2 = (AC)^2 \to AC = 20$

$BH = \frac{12 \times 16}{20} \to BH = 9{,}6$ ۱۰

فیثاغورث $\to HC = 7{,}2$

تالس

$\to AH = \frac{20 - 7{,}2}{2} = \frac{12{,}8}{2} = 6{,}4$ $\quad \frac{6{,}4}{20} = \frac{DE}{12} \to DE = 3{,}8$