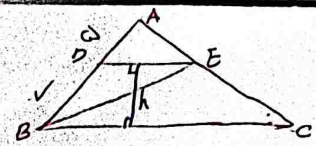
نام و نام خانوادگی: زهرا سادات حسینی پالفنا مدرسه: شماره کلاسی: ۲۲ کلاس یازدهم B

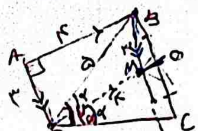
۱)



$\frac{S_{BCE}}{S_{BDE}} = ? \quad \frac{12x \times h \times \frac{1}{2}}{5x \times h \times \frac{1}{2}} = 2/4$

$DE \parallel BC \rightarrow$ تالس $\rightarrow \frac{5}{12} = \frac{DE}{BC} \rightarrow DE = 5x,\ BC = 12x$

۲)



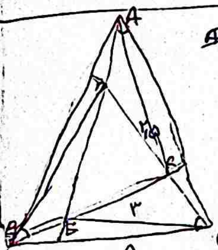
$MQ = ?$ / مستطیل $ABMD \leftarrow A = 90^\circ$

$D_1 = D_2 \rightarrow MDB \cong MDF \rightarrow MB = MF = 4$

$\rightarrow FC = 4,\ DF = 5$

$MQ = 2$ $\Leftarrow$ برابر با نصف قاعده $\leftarrow$ MQ وسط FC

۳)



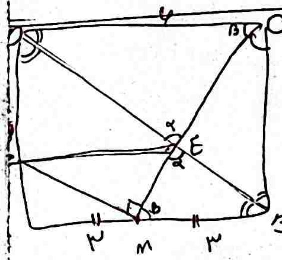
$F_1 = \alpha + B_1 = \hat{B}$

$E_1 = A_1 + \alpha = A$

$\left.\begin{matrix} F_1 = B \\ E_1 = A \end{matrix}\right\} \rightarrow$ زز $\hat{ABC} \sim \hat{DEF} \rightarrow \frac{BC}{DF} = \frac{AB}{EF}$

$\frac{8}{2/5} = \frac{AB}{3} \rightarrow AB = 9/6$

۴)



$DB = 6\sqrt{2}$

$CM = 3\sqrt{5}$

۱) ض‌ز‌ض $\rightarrow \hat{DEC} \sim \hat{EBM} \rightarrow$ ۲ = نسبت تشابه

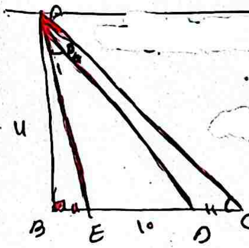
$\frac{CE}{EM} = 2 \rightarrow \frac{CM}{EM} = \frac{3}{1} = \frac{3\sqrt{5}}{EM} \rightarrow EM = \sqrt{5}$

۲) $\hat{AMF} = \hat{BCM}$, $\hat{B} = \hat{A} = 90^\circ$ $\} \rightarrow \hat{BCM} \sim \hat{AMF}$

$\frac{MB}{FA} = \frac{CM}{MF} = \frac{CB}{AM} \rightarrow MF = \frac{9\sqrt{5}}{6} \rightarrow \frac{3\sqrt{5}}{2} = MF$

$S_{\hat{MEF}} = ME \times MF \times \frac{1}{2} \times \sin 90^\circ = \frac{3\sqrt{5}}{2} \times \sqrt{5} \times \frac{1}{2} \times 1 = \frac{3 \times 5}{4} = \frac{15}{4}$

۵)



$\left.\begin{matrix} C = A_1 \\ E \text{ مشترک} \end{matrix}\right\} \rightarrow \hat{AED} \sim \hat{AEC}$

$\frac{10}{AE} = \frac{AE}{10 + x} \rightarrow (AE)^2 = 100 + 10x$

$DC = x$

$\hat{ABE}$ فیثاغورس

$(AB)^2 + (BE)^2 = (AE)^2$

$(11)^2 + x^2 = (AE)^2$

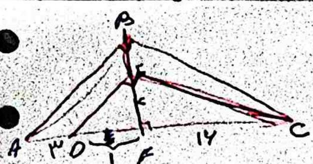
$(11)^2 + x^2 = 100 + 10x$

$x^2 - 10x + 21 = 0$

$(x-3)(x-7) = 0$

$DC = x = 3, 7$

۶)



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

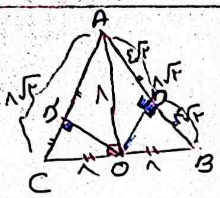
$(BF)^2 = FC \times AF \rightarrow (BF)^2 = 16 \times 4 = 64$

$BF = 8$

$\hat{BFC}$ در فیثاغورس $(BF)^2 + (FC)^2 = (BC)^2$

$64 + 256 = 320 \rightarrow BC = 8\sqrt{5}$

۷)



در مثلث متساوی‌الساقین ارتفاع = نیمساز = میانه

$\hat{AOB} \rightarrow$ متساوی‌الساقین $\leftarrow \hat{AOC}$

میانه نظیر وتر $= OD = OD'$

$(DB)^2 + (DO)^2 = (OB)^2 \rightarrow 32 + (DO)^2 = 64$

$4\sqrt{2} = DO$

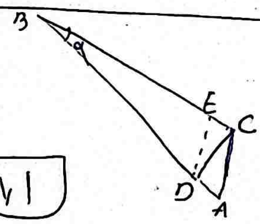
۸)

$S_{ABE} = ?\ (BD)^2 + (DC)^2 = (BC)^2 \rightarrow BC = 2\sqrt{5}$

$\hat{EOC} \cong \hat{EBO} \rightarrow BC = 2BE \rightarrow BE = \sqrt{5}$

$\hat{AEC} \sim \hat{BDC} \rightarrow S = FK^2 = 4\left(\frac{\sqrt{5}}{2}\right) = 5$

۹)



$\tan\alpha = \frac{3}{9} = \frac{1}{3} \rightarrow \cos = \frac{3}{\sqrt{10}}$

$BE = BC \times \frac{BD}{BC} \times \frac{BE}{BD}$

$= 9 \times \frac{3}{\sqrt{10}} \times \frac{3}{\sqrt{10}} = \frac{81}{10} = 8/1$

۱۰)

$\left.\begin{matrix} \text{مشترک} \\ H = B = 90^\circ \end{matrix}\right\} \hat{HCB} \sim \hat{ABC} \rightarrow \frac{12}{20} = \frac{HC}{12} \rightarrow HC = 7/2$

$AH = 2x \rightarrow 2x + 7/2 = \sqrt{(16)^2 + (12)^2} \rightarrow x = 6/4$

$\left.\begin{matrix} A \text{ مشترک} \\ D_1 = B = 90^\circ \end{matrix}\right\} \hat{ADE} \sim \hat{ABC} \rightarrow \frac{DE}{12} = \frac{6/4}{20} \rightarrow DE = \frac{64 \times 12}{100} = 3/84$