نام و نام خانوادگی: فراسادات حسینی پاقلعه سرشت کلاس: ۲۲/ کلاس هندسه B

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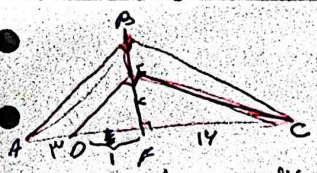

$(EF)^2 = DF \times FC \to 16 = 1 \times FC$ (۱۶)

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

$BF = 8$

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

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

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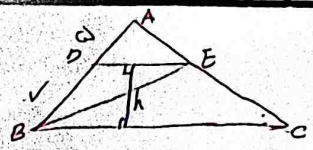

$\frac{S_{BCE}}{S_{BDE}} = ? \frac{12x \times h \times \frac{1}{2}}{5x \times h \times \frac{1}{2}} = 2.4$

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

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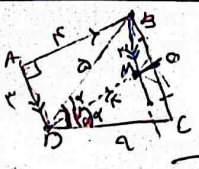

$MQ = ?$

مستطیل $ABMD \leftarrow A = 90°$

$D_1 = D_2 \to MDB \cong MDP \to MB = MP$

$\to PC = 4$, $QP = 5$

$MQ = 2$ ← برابر با نصف قاعده ← PC و MQ

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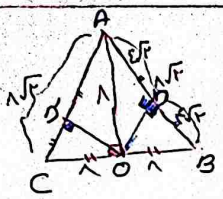

در مثلث متساوی‌الساقین ارتفاع = نیمساز = میانه

$\overset{\triangle}{AOB} \to$ متساوی‌الساقین $\leftarrow \overset{\triangle}{AOC}$

$OD = OD''$ = میانه نظیر وتر

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

$DO = 4\sqrt{2}$

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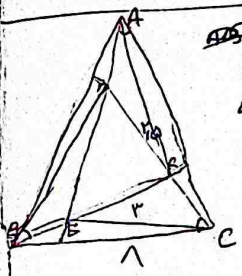

$F_1 = \alpha + B_1 = \hat{B}$

$E_1 = A_1 + \alpha = \hat{A}$

$F_1 = B$, $E_1 = A$ $\to \overset{\triangle}{ABC} \sim \overset{\triangle}{DEF} \to \frac{BC}{DF} = \frac{AB}{EF}$

$\frac{8}{2.5} = \frac{AB}{3} \to AB = 9.6$

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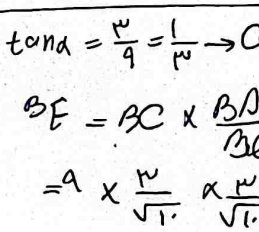

$S_{ABE} = ?$ $(BD)^2 + (DC)^2 = (BC)^2 \to BC = 2\sqrt{5}$

$E\hat{O}C \cong E\hat{B}O \to BC = 2BE \to BE = \sqrt{5}$

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

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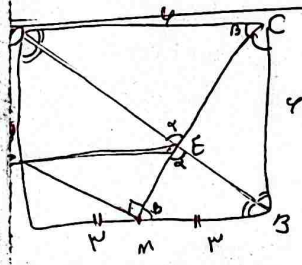

$DB = 6\sqrt{2}$

$CM = 3\sqrt{5}$

۱) طبق تالس $\to \overset{\triangle}{DEC} \sim \overset{\triangle}{EBM} \to$ نسبت تشابه $= 2$

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

۲) $A\hat{M}F = B\hat{C}M$, $\hat{B} = \hat{A} = 90°$ $\to \overset{\triangle}{BCM} \sim \overset{\triangle}{AMF}$

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

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

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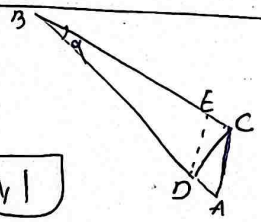
$\tan\alpha = \frac{3}{9} = \frac{1}{3} \to \cos = \frac{3}{\sqrt{10}}$

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

$= 9 \times \frac{3}{\sqrt{10}} \times \frac{3}{\sqrt{10}} = \frac{81}{10} = 8.1$



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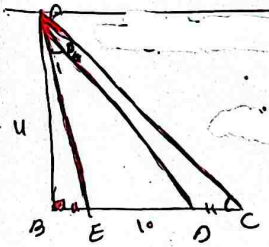

$C = A_1$, E مشترک $\to \overset{\triangle}{AED} \sim \overset{\triangle}{AEC}$

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

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

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

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

$DC = x = 3, 7$

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C مشترک، $A = B = 90°$ $\to \overset{\triangle}{ACB} \sim \overset{\triangle}{ABC} \to \frac{12}{20} = \frac{AC}{12} \to HC = 7.2$

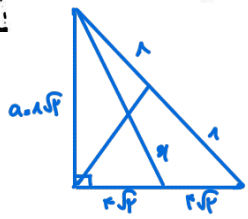
$AH = 2x \to 2x + 7.2 = \sqrt{(14)^2 + (12)^2} \to x = 4.4$

A مشترک، $D_1 = B = 90°$ $\to \overset{\triangle}{ADE} \sim ABC \to \frac{DE}{12} = \frac{4.4}{20} \to DE = \frac{4 \times 4.4}{100} = 3.168$

۱۰

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

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



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