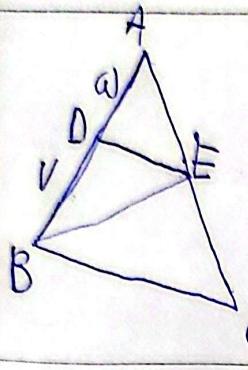
۱۹,۷۵

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

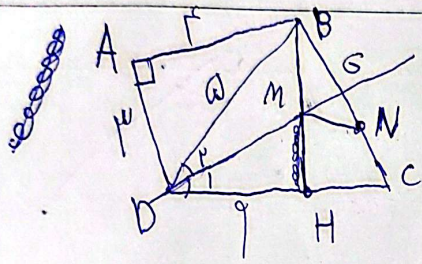
۱



ارتفاع برابر $\rightarrow \frac{S_{BCE}}{S_{BDE}} = \frac{BC}{DE} = \frac{AB}{AD} = \frac{۱۲}{۵} = ۲,۴$ ✓

۲

۲



$M=۹۰^\circ$ $DM \rightarrow$ نیمساز

BDM $\hat{M}=۹۰^\circ$ $\hat{P}_1=\hat{P}_2$ $\rightarrow$ روز $\rightarrow$ $BDM \cong MDH$

MDH $DH=BD=۵ \Rightarrow HC=۴$

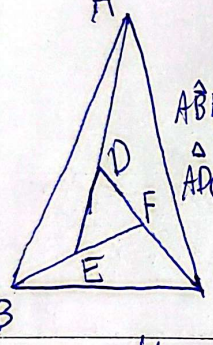
$M \rightarrow BH$ کمان

$BHC \rightarrow \frac{BM}{BH} = \frac{MB}{HC} \rightarrow \frac{۱}{۲} = \frac{MN}{۴}$

$\rightarrow MN=۲$ ✓

۳

۲



$A\hat{B}F = C\hat{A}E = B\hat{C}D = \alpha$

ABE زاویه خارجی $\hat{E}_1 \rightarrow \hat{E}_1 = x+\alpha = \hat{A}$

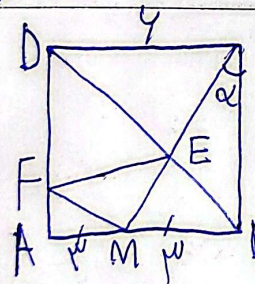
ADC زاویه خارجی $\hat{D}_1 \rightarrow \hat{D}_1 = x+y = \hat{C}$

$DEF \sim ABC$.

$\Rightarrow \frac{DF}{BC} = \frac{EF}{AB} \rightarrow \frac{۲,۵}{۸} = \frac{۳}{AB} \rightarrow AB = \frac{۲۴}{۲,۵} = ۹,۶$ ✓

۴

۲



$AM=BM=۳$, $BM \parallel DC \rightarrow BME \sim DEC$

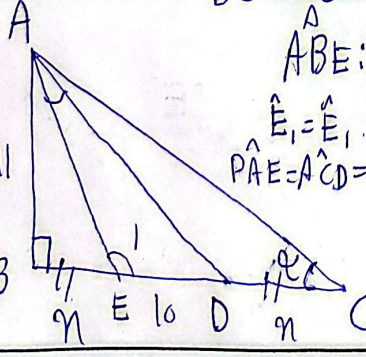
$\Rightarrow \frac{ME}{CE} = \frac{BM}{DC} = \frac{۳}{۹} = \frac{۱}{۳}$ (۱) $BCM: CM^۲ = BC^۲ + BM^۲ = ۴۵$

$\rightarrow CM = ۳\sqrt{۵}$ (۲) (۲)، (۱) $\rightarrow ME = \sqrt{۵}$ ، $CE = ۲\sqrt{۵}$

$AMF \sim BCM \rightarrow \frac{AM}{BC} = \frac{MF}{MC} \rightarrow \frac{۳}{۶} = \frac{MF}{۳\sqrt{۵}} \rightarrow MF = \frac{۳}{۲}\sqrt{۵}$ ، مساحت: $S_{MFE} = \frac{۱}{۲} ME \times MF = \frac{۱}{۲}(\sqrt{۵} \times \frac{۳}{۲}\sqrt{۵}) = \frac{۱۵}{۴}$

۵

۲



$ABE: AE^۲ = ۱۱^۲ + x^۲ \rightarrow AE = \sqrt{۱۲۱+x^۲}$

$\hat{E}_1 = \hat{E}_1$ ، $P\hat{A}E = A\hat{C}D = \alpha$ $\rightarrow$ زز $\rightarrow A\hat{E}C \sim A\hat{E}D \Rightarrow \frac{AE}{ED} = \frac{EC}{AE} \rightarrow AE^۲ = ED \times EC$

$\rightarrow ۱۲۱+x^۲ = ۱۵(۱۵+x) \rightarrow x^۲ - ۱۵x + ۵۶ = ۰ \rightarrow (x-۸)(x-۷) = ۰$

$\Rightarrow \begin{cases} x=۸ \\ x=۷ \end{cases}$ ✓

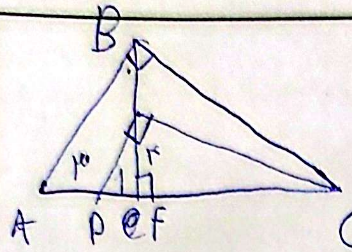
$\frac{۱۵\sqrt{۵}}{۴}$

۱۱

$۳\sqrt{۷۵}$ ✓

آرمین ایزدی

6 — (۲)



$D\hat{E}C: EF^2 = DF \times FC \rightarrow 4^2 = 1 \times FC \rightarrow FC = 16$

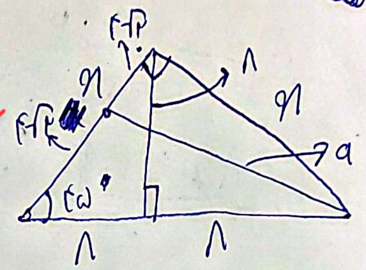
$A\hat{B}C: BF^2 = AF \times FC \Rightarrow BF^2 = 64, BF = 8$

$B\hat{F}C: BC^2 = BF^2 + FC^2 \Rightarrow BC^2 = 8^2 + 16^2 \Rightarrow BC = 8\sqrt{5}$ ✓

7 — (۲)

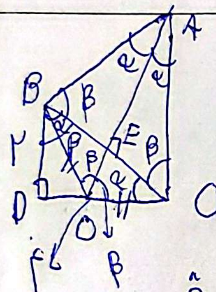
مثلث قائم الزاویه است چون میانه وارد بر وتر نصف وتر

$x^2 + x^2 = 16^2 \rightarrow 2x^2 = 256 \rightarrow x^2 = 128 \rightarrow x = 8\sqrt{2}$



$a = \sqrt{(8-4\sqrt{2})^2 + (4\sqrt{2})^2} = \sqrt{160} = 4\sqrt{10}$ ✓

8 — (۱/۷۵)



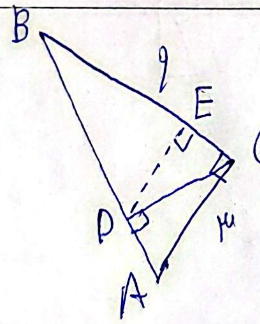
$\hat{D} = \hat{C} = 90°, BE = EC, \alpha + \beta = 90°, C_2 = B$

$CE = EB$, $AE = EA$, $E_1 = E_2 = 90°$ } ض ز ض $\Rightarrow A\hat{B}E \cong A\hat{C}E$

$\hat{B}_1 = \hat{B}_2, \hat{A}_1 = \hat{C}_1 \rightarrow A\hat{B}E \sim B\hat{D}C \rightarrow \frac{\sqrt{5}}{2} = k, S_{ABE} = k^2 S_{BDC}$

S = 4 دقت!

9 — (۲)



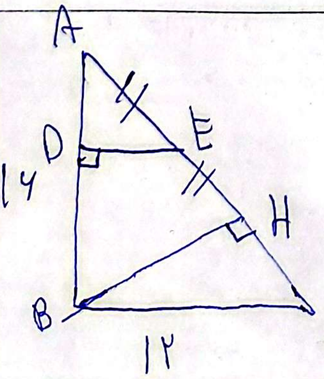
$AB = \sqrt{3^2 + 9^2} = 3\sqrt{10}$ $CD^2 = AD \times DB, AD = \frac{AC^2}{AB}, BD = \frac{BC^2}{AB}$

پس: $DB = \frac{9^2}{3\sqrt{10}} = \frac{27}{\sqrt{10}}$

$\hat{E} = \hat{D} = 90°$, $\hat{C} = \hat{C}$ } زز $\rightarrow C\hat{D}E \sim C\hat{D}B$

$\frac{DE}{DB} = \frac{CD}{CB} \rightarrow CD = \frac{AC \times BC}{AB} = \frac{3 \times 9}{3\sqrt{10}} = \frac{9}{\sqrt{10}}$ $\frac{DE}{\frac{27}{\sqrt{10}}} = \frac{\frac{9}{\sqrt{10}}}{9} \rightarrow DE = \frac{27}{10}$ و $\frac{BE}{BC} = \frac{DE}{CD} \rightarrow \frac{BE}{9} = \frac{\frac{27}{10}}{\frac{9}{\sqrt{10}}}$ → BE = [illegible] ✓

10 — (۲)



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

ADE, $ABH \Rightarrow H = D = 90°$, $\hat{A} = \hat{A}$ } زز $\rightarrow A\hat{D}E \sim A\hat{B}H$ $\frac{DE}{BH} = \frac{AE}{16}$ (1)

$BH \Rightarrow \frac{16 \times 12}{2} = \frac{BH \times 20}{2} \rightarrow BH = 9.6$ (2) $AE \Rightarrow AH \times 20 = 16^2$

$DE = \frac{9.6 \times 6.4}{16} = 3.84$ ✓ ⟸ (1),(2),(3) $\frac{AH}{2} = AE = 6.4$ (3)

CamScanner