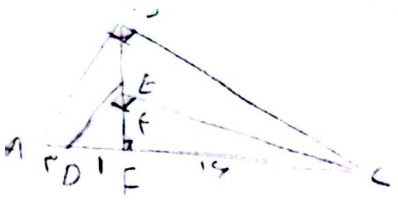
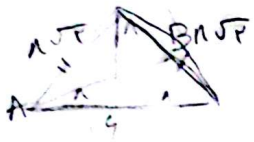


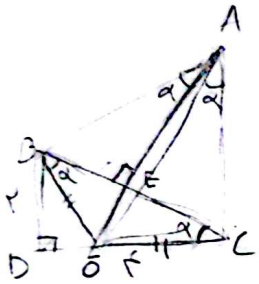
$EF^2 = DE \times FC \Rightarrow 16 = 1 \times FC \Rightarrow FC = 16$

$DF^2 = 4 \times 16 = 64 \Rightarrow DF = 8$

$BC^2 = 16 \times 20 \Rightarrow 320 \Rightarrow BC = 8\sqrt{10}$



$AB^2 = (6\sqrt{2})^2 + (8\sqrt{2})^2 \Rightarrow 72 + 128 = AB = \sqrt{200} = 10\sqrt{2}$



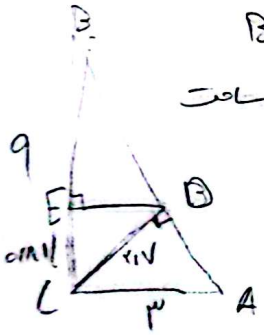
$BC^2 = 4 \times 16 = BC = 8\sqrt{2}$

$BE = \frac{BC}{2} = \sqrt{2}$

$AE = 14\sqrt{2}$

$S = \frac{14\sqrt{2} \times \sqrt{2}}{2} = 14$

$BD = 2 \quad 2^2 + DO^2 = DF^2$



$BE = ?$ $\quad AB^2 = 81 + 9 = 100 \Rightarrow AB = 10$

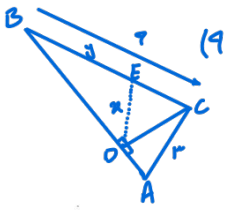
$\text{مساحت} = 6 \times 9 = DC \times 10 \Rightarrow DC = 5.4$

$BC^2 = CE \times 9 \Rightarrow 29.16 = 9 \times CE \Rightarrow CE = 3.24$

$\Rightarrow BE = 9 - 3.24 \Rightarrow 5.76$

$\frac{x}{3} = \frac{y}{9} \rightarrow y = 3x$

$x^2 = y(9-y) = 3x(9-3x) \rightarrow x = 2.7, \; y = 8.1$

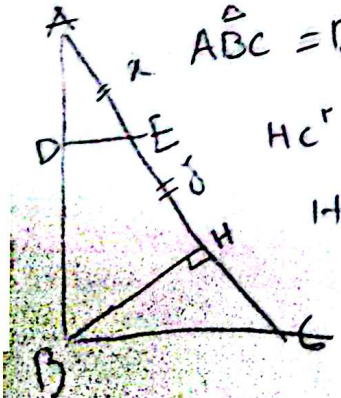


$AC^2 = AB^2 + BC^2 \Rightarrow 15^2 + 12^2 \Rightarrow AC = 20$

$A_{ABC} = BH \times AC = AB \times BC \Rightarrow BH \times 20 = 15 \times 20 \Rightarrow BH = 9.6$

$HC^2 = BC^2 - BH^2 = (12)^2 - (9.6)^2 \Rightarrow HC = 7.2$

$HC + 2x = 20 \rightarrow x = 6.4$

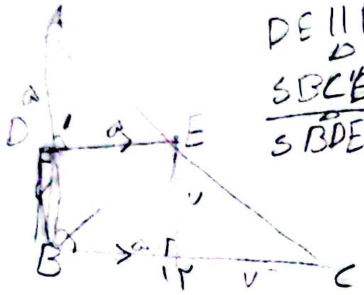


$\frac{DE}{BC} = \frac{AE}{AC} \Rightarrow \frac{DE}{12} = \frac{6.4}{20} \Rightarrow DE = 3.84$

آیناز فرهمند

۱۳,۷۵

۱)



$DE \parallel BC$

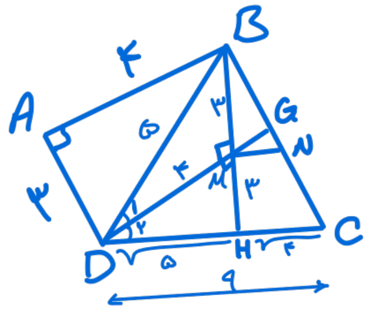
$\frac{S_{\overset{\triangle}{BCE}}}{S_{\overset{\triangle}{BDE}}} = ?$

$\frac{AD}{AB} = \frac{DE}{BC} = \frac{۵}{۱۲} = \frac{BC}{DE} = \frac{۱۲}{۵}$

$\frac{S_{\overset{\triangle}{BCE}}}{S_{BDE}} = \frac{BC}{DE} = \frac{۱۲}{۵} = ۲,۴$

۶

۲)



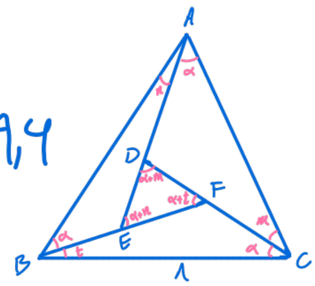
$\hat{D}_2 = \hat{D}_1 \leftarrow$ DMH , BDM هم‌نهشت هستند

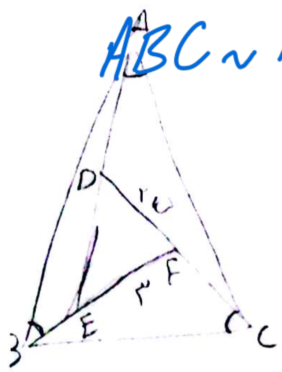
دو مثلث BMN , BHC با نسبت ۱/۲ متشابه‌اند پس MN، ۱/۲ HC است

بنابراین فاصله M از وسط ضلع BC برابر ۲ است

۶

۳)

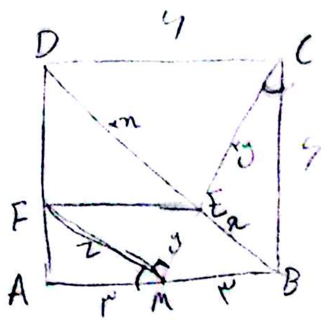




$\overset{\triangle}{ABC} \sim \overset{\triangle}{DEF} \rightarrow \begin{cases} F = B \\ D = C \\ A = E \end{cases} \rightarrow \frac{AB}{۳} = \frac{۸}{۲,۵} \rightarrow AB = ۹,۶$

۵

۴)



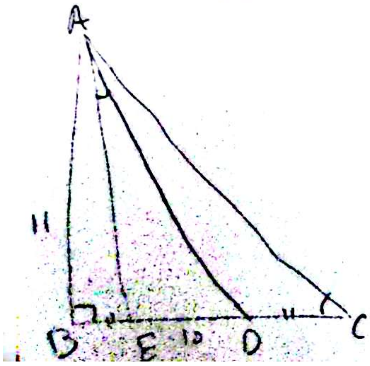
$CM^2 = ۳۶ + ۹ \Rightarrow CM = ۳\sqrt{۵}$ $\quad ME = \dots = \sqrt{۵}$

$\frac{CB}{AM} = \frac{۶}{۳} = ۲ = \frac{۳\sqrt{۵}}{Z} \Rightarrow ۲Z = ۳\sqrt{۵} \Rightarrow Z = \frac{۳\sqrt{۵}}{۲}$

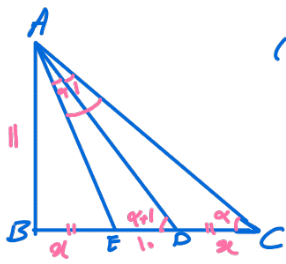
$S = \frac{yZ}{۲} = \frac{۳ \times \sqrt{۵} \times \sqrt{۵}}{۲ \times ۲} = \frac{۱۵}{۴}$

۶

۵)



$DC = ?$



$\overset{\triangle}{CAE} \approx \overset{\triangle}{AED} \rightarrow \begin{cases} \alpha = \alpha \\ \alpha + ۱ = \alpha + ۱ \\ \hat{E} = \hat{E} \end{cases} \rightarrow \frac{AE}{ED} = \frac{EC}{AE}$

$\frac{\sqrt{x^2 + ۱۲۱}}{۱۰} = \frac{x + ۱۰}{\sqrt{x^2 + ۱۲۱}} \rightarrow x = ۳ \text{ یا } ۷$

۵