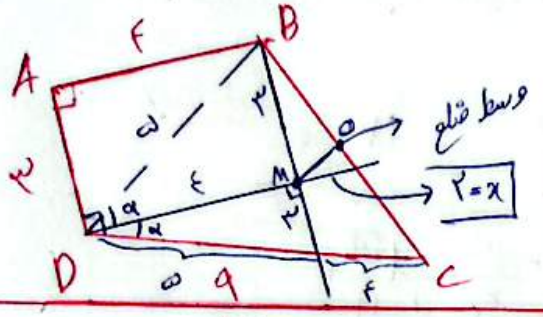
رسا رضوانی راد ۱۱ پسر B

۱-

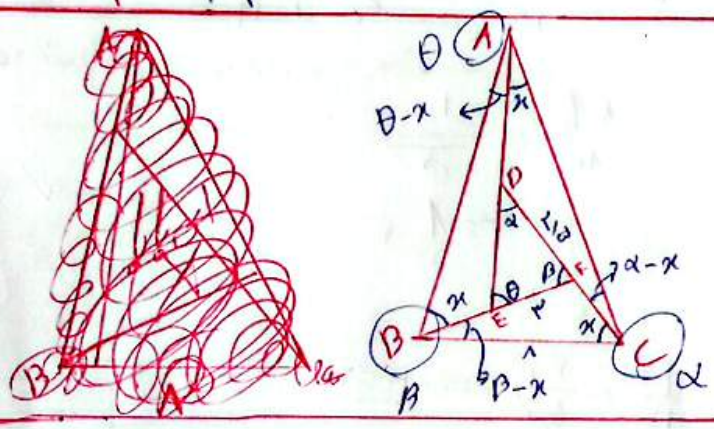
$h_{\underset{1}{B\hat{D}E}} = h_{\underset{2}{B\hat{E}C}} \Rightarrow \frac{S_2}{S_1} = \left(\frac{BC}{DE}\right) = \left(\frac{7+5}{5}\right) = \frac{12}{5}$

۲-



$\boxed{x=2}$ $\frac{x}{4} = \frac{BO}{BC} = \frac{1}{2}$

۳-



با توجه به $A\hat{B}C \sim E\hat{D}F$

$\frac{2/5}{3} = \frac{8}{AB} \Rightarrow AB = \frac{48}{5}$

۴-

$M\hat{B}C \sim A\hat{F}M \Rightarrow \frac{6}{2} = \frac{3}{AF} \rightarrow 1/5 \Rightarrow 9 + \frac{9}{4} = FM^2$

$CM = \sqrt{36+9} = 3\sqrt{5}$ $FM = \frac{3\sqrt{5}}{2}$

$\frac{CE}{EM} = \frac{2}{1} \Rightarrow CE = 2\sqrt{5}$, $EM = \sqrt{5}$

$S = \sqrt{5} \times \frac{3\sqrt{5}}{2} \times \frac{1}{2} = \frac{15}{4}$

۵-

$A\hat{C}E \sim A\hat{E}D$

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

$\Rightarrow x^2 - 10x + 21 = 0 \rightarrow 3, 7$

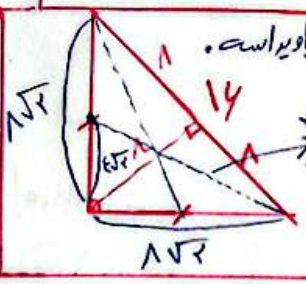
۶-

$EF^2 = DF \times FC$

$16 = 1 \times 16 \Rightarrow FC = 16$

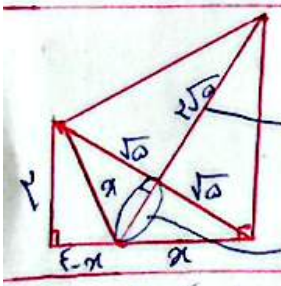
$BC^2 = FC \times AC = 16 \times (16+4+3) = 320 \Rightarrow BC = 8\sqrt{5}$

۷- طبق اطلاعات سوال، قائم الزاویه است.



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

۸-



$x^2 = 4 + x^2 + 16 - 8x \Rightarrow x = 2/5$

$(4E + \frac{\sqrt{5}}{2})\frac{\sqrt{5}}{2} = \frac{2\sqrt{5}\sqrt{5}}{2} \quad 2\sqrt{5} = AE$

$S = \frac{1}{2}\sqrt{5} \times 2\sqrt{5} = \boxed{5}$

$5 + O^2 = 4/25 \Rightarrow O^2 = \frac{5}{4} \Rightarrow O = \frac{\sqrt{5}}{2}$

۹-

$BA = 2\sqrt{10}$ $2\sqrt{10} \times AD = 9$

$AD = \frac{3}{\sqrt{10}}$

$\frac{BD}{BA} = \frac{BE}{2x} = \frac{2/1\sqrt{10}}{2\sqrt{10}} \rightarrow BE = 8/1$

۱۰-

$1EE = HC \times 20 \rightarrow HC = 7/2 \Rightarrow AE = 4/4 = EH$

$\frac{DE}{12} = \frac{4/4}{20} \Rightarrow DE = \frac{4/4 \times 3}{5} = \frac{13/2}{5} = 2/64$