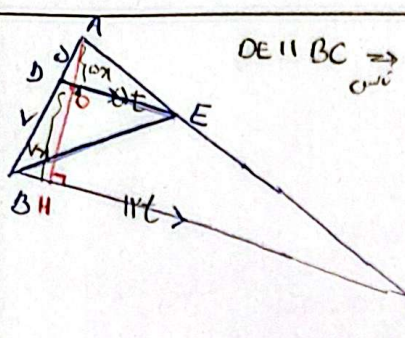
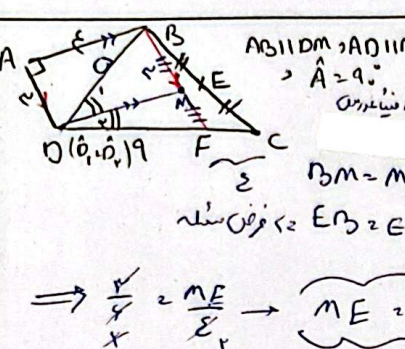
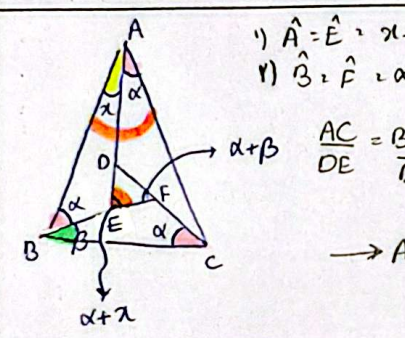




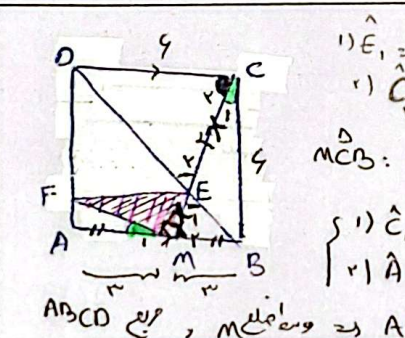
$DE \parallel BC \Rightarrow \frac{AD}{AB} = \frac{OE}{BC} \Rightarrow \frac{AD}{AB} = \frac{OE}{BC}$
 $DO \parallel BH \Rightarrow \frac{AD}{AB} = \frac{AO}{OH} \Rightarrow \frac{AD}{AB} = \frac{AO}{OH}$
 $\frac{AD}{AB} = \frac{OE}{BC} \Rightarrow \frac{AD}{AB} = \frac{OE}{BC}$
 $\frac{S_{DEB}}{S_{BCE}} = \frac{OH \times DE}{DH \times BC} = \frac{VH \times \frac{1}{2} \times \frac{1}{2}}{\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}} = \frac{1}{2} \Rightarrow \frac{S_{BCE}}{S_{BDE}} = \frac{1}{2}$



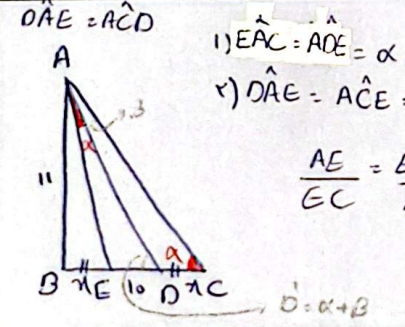
$AB \parallel DM, AD \parallel BM \Rightarrow ABDM$ متوازی الاضلاع $\Rightarrow BM = AD$
 $\hat{A} = 90^\circ \Rightarrow \hat{D} = 90^\circ$
 $MD \perp BC$
 $MD^2 + MB^2 = BD^2 \Rightarrow BD^2 = 9 + 16 = 25 \Rightarrow BD = 5$
 $BM = MF$ (نقطه M وسط BC)
 $EB = EC$ (نقطه E وسط AC)
 $ME \parallel CD$
 $\Rightarrow \frac{1}{2} = \frac{ME}{CE} \Rightarrow ME = 2$



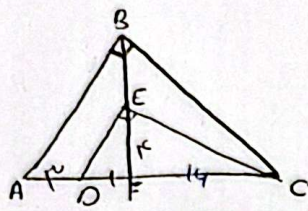
$\hat{A} = \hat{E} = \alpha + \alpha$
 $\hat{B} = \hat{F} = \alpha + \beta$
 $\frac{AC}{DE} = \frac{BC}{DF} = \frac{AB}{EF} \Rightarrow \frac{AC}{DE} = \frac{AB}{EF}$
 $\Rightarrow AB = \frac{9 \times 1}{1.5} = 6$



$S_{FME} = \frac{1}{2} FM \times ME = \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{4}$
 $\hat{E}_1 = \hat{E}_2$ (DC \parallel AB) $\Rightarrow \triangle OCE \sim \triangle MEB \Rightarrow \frac{EM}{EC} = \frac{MB}{BC} = \frac{1}{2}$
 $MCB: CM^2 = MB^2 + BC^2 \Rightarrow (2m)^2 = 9 + 16 \Rightarrow m = \frac{5}{2}$
 $\hat{C}_1 = \hat{M}_1$ (وجه)
 $\hat{A}_1 \hat{B}_1 = 90^\circ \Rightarrow \triangle FAM \sim \triangle CBM \Rightarrow \frac{AM}{BC} = \frac{FM}{MC} \Rightarrow FM = \frac{5\sqrt{5}}{2}$



$\hat{DAE} = \hat{ACD}$
 $\hat{EAC} = \hat{ACE} = \alpha + \beta$
 $\hat{DAE} = \hat{ACE} = \alpha$
 $\triangle ACE \sim \triangle DAE$
 $\frac{AE}{EC} = \frac{ED}{AE} \Rightarrow \frac{AE}{10 + \pi} = \frac{10}{AE} \Rightarrow AE^2 = 10 + \pi$
 $AE^2 = 10 + \pi$



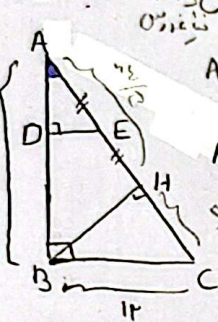
$$EF^2 = DF \times FC$$

$$14 = 1 \times FC \Rightarrow FC = 14$$

$$BC^2 = FC \times AC$$

$$BC^2 = 14 \times 20 \Rightarrow BC = 14\sqrt{2}$$

DE = ?

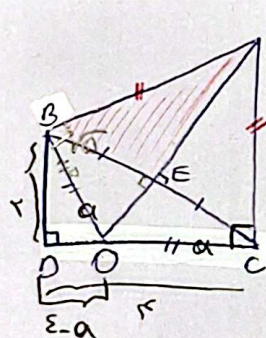


$$AB^2 = AC^2 = AB^2 + BC^2 \rightarrow AC^2 = 14^2 + 14^2 \rightarrow AC^2 = 2 \times 14^2 \rightarrow AC = 14\sqrt{2}$$

$$ABC: BH \times AC = AB \times BC \rightarrow BH = \frac{14 \times 14}{14\sqrt{2}} = \frac{14}{\sqrt{2}}$$

$$BC^2 = CH \times AC \rightarrow 14^2 = CH \times 14 \rightarrow CH = 14$$

$$ADE \sim AHB \Rightarrow \frac{AE}{AB} = \frac{DE}{BH} \Rightarrow \frac{AE}{14} = \frac{DE}{\frac{14}{\sqrt{2}}} \Rightarrow DE = \frac{AE \times \sqrt{2}}{2}$$

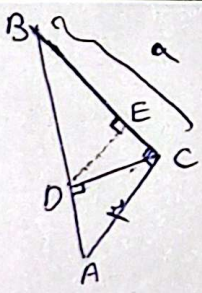


$$OC = OB \Rightarrow AO \perp BC \Rightarrow BE = EC \Rightarrow AB = AC$$

$$BDC: BD^2 + DC^2 = BC^2 \rightarrow 4^2 + 14^2 = BC^2 \rightarrow BC = 14\sqrt{2} \Rightarrow BE = EC = 7\sqrt{2}$$

$$BEO: (4)^2 + (7\sqrt{2} - a)^2 = a^2 \rightarrow 16 + 49 \times 2 - 14a\sqrt{2} + a^2 = a^2 \rightarrow a = \frac{14\sqrt{2}}{2} = 7\sqrt{2}$$

$$BEO: EO^2 + EB^2 = BO^2 \Rightarrow EO^2 + a^2 = (7\sqrt{2})^2 \rightarrow EO^2 = 98 - a^2 \rightarrow EO = \sqrt{98 - a^2} = \sqrt{98 - 98} = 0$$

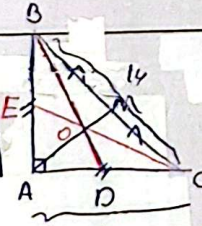


$$ACB: AB^2 = AC^2 + BC^2 \rightarrow AB^2 = 9 + 11 = 20 \rightarrow AB = \sqrt{20}$$

$$AC \times BC = AB \times CD \rightarrow 3 \times \sqrt{9} = \sqrt{20} \times CD \Rightarrow CD = \frac{3\sqrt{9}}{\sqrt{20}}$$

$$BC^2 = BD \times AB \rightarrow 11 = BD \times \sqrt{20} \rightarrow BD = \frac{11}{\sqrt{20}}$$

$$BDC: BD^2 = BE \times BC \rightarrow \left(\frac{11}{\sqrt{20}}\right)^2 = BE \times 9 \rightarrow BE = \frac{11 \times 11}{9 \times 20} = \frac{11}{18}$$



$$AM = \frac{1}{2}BC \Rightarrow AB^2 = AC^2 + BC^2 \rightarrow AB^2 = 9 + 11 = 20 \rightarrow AB = \sqrt{20}$$

$$\rightarrow n = 14\sqrt{2} \rightarrow AD, DC = BE = EA, 2\sqrt{2}$$

$$ABD: BD^2 = AB^2 + AD^2 \rightarrow BD^2 = 14^2 + 2^2 \rightarrow BD = \sqrt{196 + 4} = \sqrt{200} = 10\sqrt{2}$$

$$ACE: AE^2 + AC^2 = EC^2 \rightarrow CE^2 = 2^2 + 14^2 \Rightarrow CE = \sqrt{4 + 196} = \sqrt{200} = 10\sqrt{2}$$