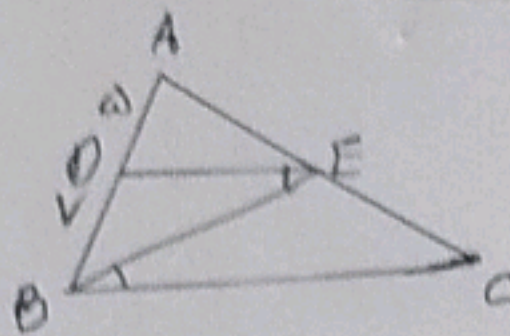
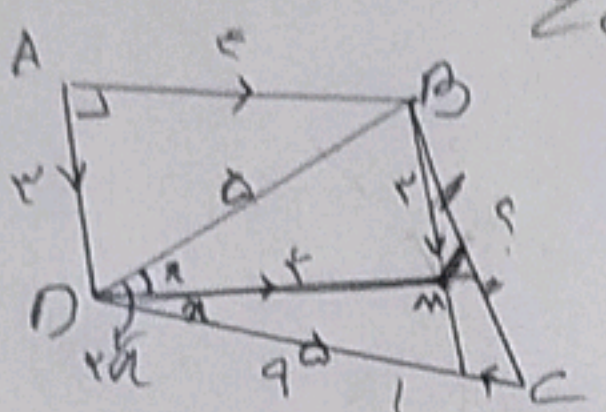
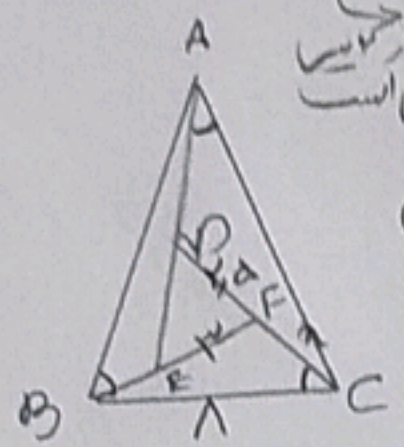




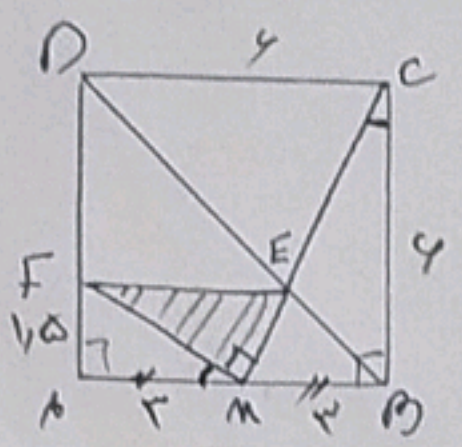
$\frac{S_{BCE}}{S_{BDE}} = \frac{BE \times BC \times \frac{1}{2} \times \sin B}{DE \times BE \times \frac{1}{2} \times \sin E} = \frac{BC}{DE} \times \left\{ \frac{AD}{AB} = \frac{DE}{BC} = \frac{d}{14} \Rightarrow \frac{14}{d} \right\}$
 Z ق b $\Rightarrow \hat{E} = \hat{B}$



$\frac{a}{2a} = \frac{m}{e} \quad (2)$

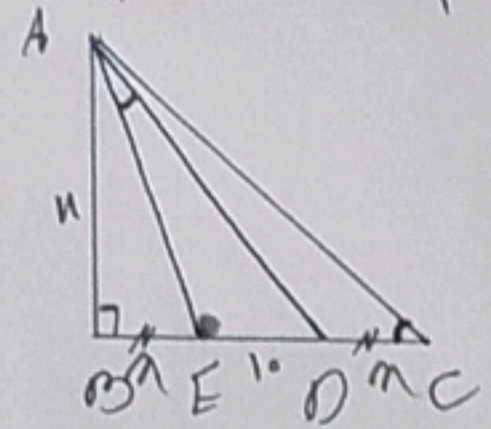


B - a & B = \hat{B} \quad \text{نسبة} \\
 b - a + a = \hat{b} \quad \text{زاوية} \\
 c - a + a = \hat{c} \\
 \frac{DF}{BC} = \frac{EF}{AB} = \frac{r \cdot d}{a} = \frac{r}{a} \cdot a \cdot \frac{d}{a}



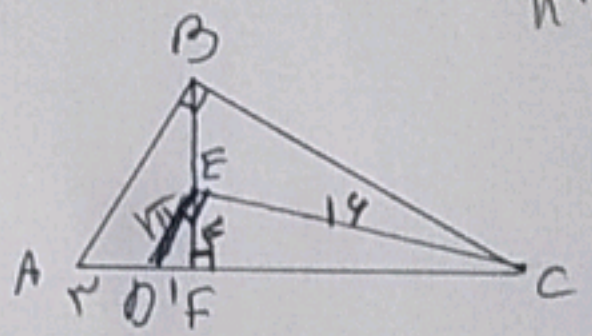
MCB \sim AMF \\
 \frac{BC}{AM} = \frac{CM}{FM} = \frac{MB}{AF} = \frac{6}{3} = \frac{2}{1.5} \Rightarrow MC = \sqrt{3 \cdot 6 \cdot 9} = 3\sqrt{6} \\
 \sqrt{\left(\frac{3}{2}\right)^2 \cdot 9} = FM \\
 \sqrt{\frac{9}{4} + \frac{3 \cdot 9}{4}} = \frac{\sqrt{45}}{2} \Rightarrow \frac{3\sqrt{5}}{2} \times \frac{\sqrt{5}}{2} = \frac{15}{2}

DCEN \sim EMP \\
 \frac{DC}{MP} = \frac{CE}{EM} = \frac{6}{3} = \frac{CE}{EM} = 2 \\
 EM = \sqrt{8} \quad \text{و} \quad \frac{CE}{MC} = \frac{2}{3}

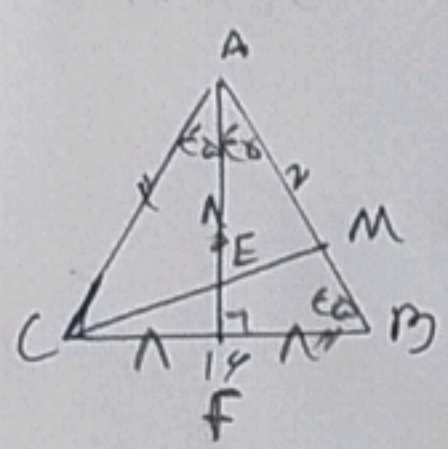


AEC \sim AED \\
 \frac{AE}{10} = \frac{EC}{AE} = \frac{AC}{AD} \\
 \frac{AE^2}{10} = 10(10 + a) \Rightarrow a^2 - 10a - 100 = 0 \Rightarrow \frac{3 \pm \sqrt{129}}{2}

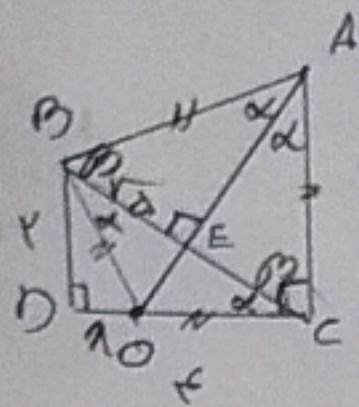
نورالامانی



$E^2 = 1 \times FC = 16$
 $FC = 16$
 $FC \times (FC + F) = BC^2 \Rightarrow \sqrt{16 \times 4} = 4\sqrt{8}$



CM \quad a \times \frac{1}{3} = \frac{1}{3} = EF \\
 \frac{CE}{CM} = \frac{1}{3} \quad \sqrt{\left(\frac{1}{3}\right)^2 + 1^2} = CE \Rightarrow \frac{1}{3} = CM \\
 \sqrt{\frac{9 \cdot 9}{9} + \frac{9 \cdot 9}{9}} = \frac{\sqrt{9 + 9}}{3} = \frac{1\sqrt{18}}{3} \times \frac{3}{3} = \sqrt{2}

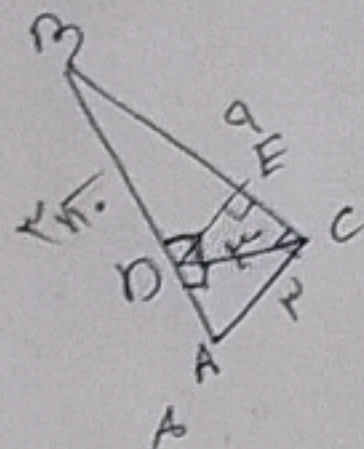


$$S_{ABE} = \frac{1}{2} \sqrt{r^2 + r^2} = r\sqrt{2}$$

$$\frac{CD}{BC} = \cos \alpha = \frac{r}{r\sqrt{2}} = \frac{1}{\sqrt{2}}$$

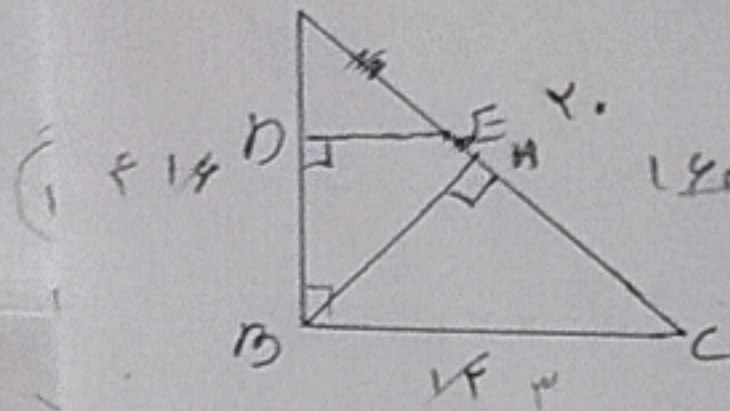
$$\frac{BE}{AE} = \tan \alpha = \frac{1}{\sqrt{2}} \Rightarrow \frac{r\sqrt{2}}{r\sqrt{2}}$$

$$\frac{r\sqrt{2} \times r\sqrt{2}}{r} = 2$$



$$\tan \alpha = \frac{1}{\sqrt{2}} \cos \alpha = \frac{r}{r\sqrt{2}}$$

$$DE = BC \times \frac{BD}{BC} \times \frac{BE}{BD} \Rightarrow a \left(\frac{r}{r\sqrt{2}} \right)^2 \Rightarrow 1, 1$$



$$\frac{1}{\sqrt{2}} \times \frac{1}{\sqrt{2}} = \frac{1}{2}$$

$$\frac{1}{\sqrt{2}} = \frac{CH}{AC} \times \frac{1}{\sqrt{2}} = \frac{1}{2}$$

$$\frac{AE}{AB} = \frac{DE}{BH} = \frac{1}{2} \Rightarrow \frac{1}{2} = \frac{DE}{\frac{1}{2}} \Rightarrow DE = \frac{1}{4}$$