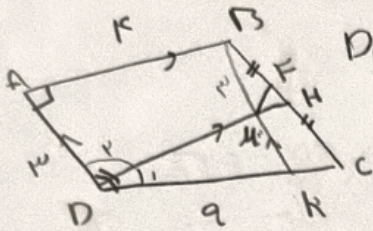
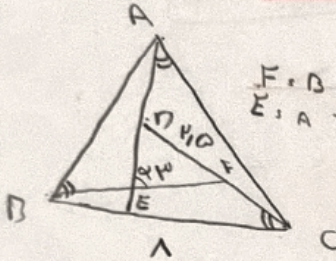


ارتفاع برابر دارند $\rightarrow \frac{S_{BCE}}{S_{BDE}} = \frac{BC}{DE} \rightarrow \frac{6}{12} = \frac{DE}{BC} \rightarrow \left[\frac{12}{6} \right]$

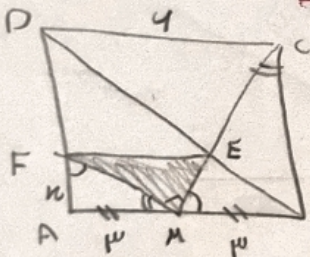


$D_1, D_2 \rightarrow BDM \cong DMF$

$BMH \sim BKC \rightarrow \frac{9}{12} = \frac{BK}{BM} \rightarrow \frac{BK}{BM} = \frac{1}{4} \rightarrow \frac{HK}{MN} = \frac{1}{4} \rightarrow \left[\frac{1}{4} \right]$



F, D
 $E, A \rightarrow \triangle ABC \sim \triangle DEF \rightarrow \frac{BC}{DE} = \frac{AB}{EF} \rightarrow \frac{1}{1/2} = \frac{AB}{EF} \rightarrow \left[\frac{2}{1} \right]$

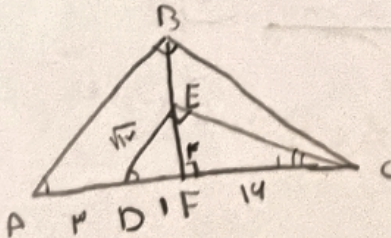


$DCE \sim HBE \rightarrow 12^2 + 4^2 = x^2 \rightarrow \sqrt{160} = 4\sqrt{10}$

$4 \times \frac{1}{2} \times \sqrt{10} = \frac{1}{2} \times \sqrt{10} \rightarrow \left[EM = \sqrt{10} \right]$

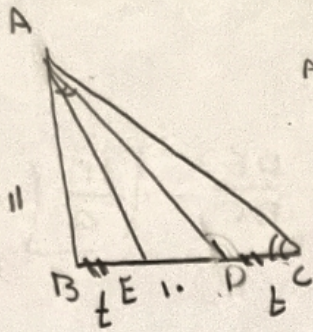
$CBM \sim MAF \rightarrow \frac{4}{9} = \frac{12}{x} \rightarrow x = \frac{27}{2} \rightarrow FM = \frac{12}{9}$

$\frac{EM \times FM}{1} = \frac{\frac{12\sqrt{10}}{9} \times \sqrt{10}}{1} = \frac{120}{9} = \frac{40}{3}$



$11 \neq 1, \sqrt{11}$

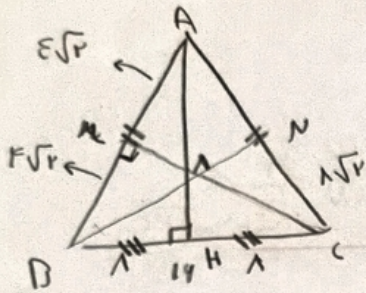
$14 = DE \times FC \rightarrow FC = 14 \rightarrow BC^2 = 14 \times 10 \rightarrow BC = 14\sqrt{10}$



$$\triangle ADE \sim \triangle AEC \rightarrow \frac{AE}{DE} = \frac{ED}{AE} \rightarrow AE^2 = ED \times CE \rightarrow 1 \cdot (1+t) = 1 + 1 \cdot t$$

$$AE^2 = AB^2 + EB^2 \rightarrow 11^2 + t^2 = 11^2 + 1 \cdot t$$

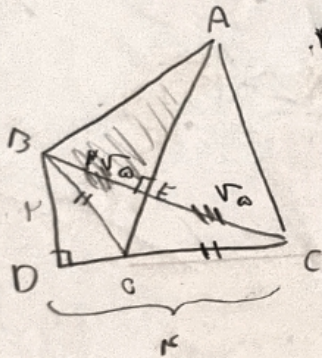
$$t^2 + 11 - 1 \cdot t = 0 \quad (t-3)(t+11) = 0 \quad t = 3 \text{ or } t = -11 \quad \text{D.C.V. (V)}$$



$$AD^2 = 4\epsilon + 4\epsilon = AB \cdot \sqrt{17} \rightarrow AM \cdot MB = \epsilon \sqrt{17}$$

$$(1\sqrt{17})^2 + (\epsilon \sqrt{17})^2 = 4\epsilon \times 17 + 14 \times 17 \rightarrow 14 \quad \boxed{CM = 17\sqrt{14}}$$

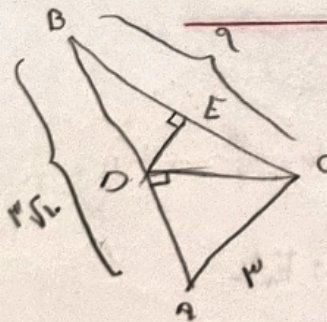
$$CM = BN$$



$$14 + 17 < 17 \rightarrow BE = 17\sqrt{10} \rightarrow BE \cdot \sqrt{10} \rightarrow AE \cdot 17\sqrt{10}$$

$$S_{ADE} = \frac{1}{2} \times AE \times BE = \frac{1}{2} \times \sqrt{10} \times 17\sqrt{10} = 170$$

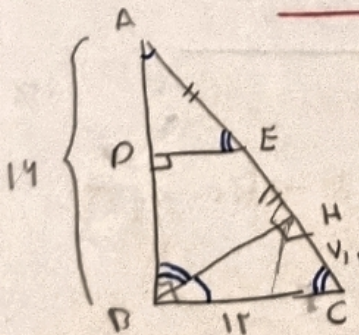
$$14 + \epsilon = 170 \rightarrow BE = 17\sqrt{10} \rightarrow BE \cdot \sqrt{10}$$



$$11 + 9, 9 \rightarrow 17, 17\sqrt{11}$$

$$17^2 = AD \times 17\sqrt{11} \rightarrow AD = \frac{17}{17\sqrt{11}} = \frac{1}{\sqrt{11}} = \frac{17\sqrt{11}}{11}$$

$$\frac{AE}{17} = \frac{17\sqrt{11}}{11} \rightarrow \frac{BE}{17} = \frac{17}{11} \rightarrow BE = \frac{17^2}{11}$$



$$\frac{17}{14} = \frac{17}{14}$$

$$AC = 14 + 17 = 31$$

$$17 \times 17 = CH \times 17 \rightarrow CH = 17$$

$$\frac{17 - 17}{17} = 0 \rightarrow AE \cdot EH = 17$$

$$\frac{17}{17} \cdot \frac{17}{17} \rightarrow DE = \frac{17}{17}$$