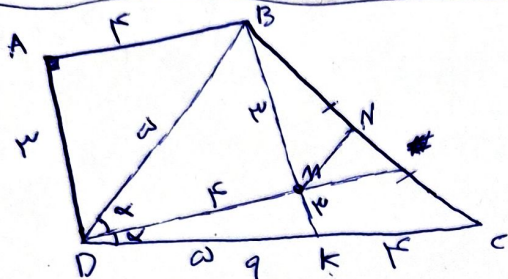


$$\frac{AD}{AB} = \frac{DE}{BC} = \frac{\alpha}{12}$$

$$\frac{S_{\triangle BCE}}{S_{\triangle BDE}} = \frac{\frac{12 \times h}{2}}{\frac{\alpha \times h}{2}} = \frac{12}{\alpha}$$



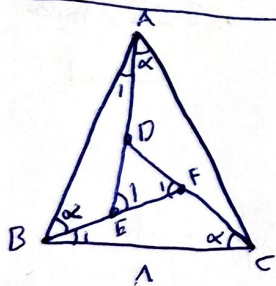
$$\hat{D}_1 = \hat{D}_2 = \alpha \quad \text{اضلاع موازی و زاویه برابر} \quad BM = MK = 3$$

$$\triangle BKC \sim \triangle BNM$$

$$\frac{BN}{BC} = \frac{1}{3}$$

$$\frac{MN}{3} = \frac{1}{3}$$

$$MN = 1$$



$$F_1 = \alpha + B_1 = \hat{B}$$

$$E_1 = A_1 + \alpha = \hat{A}$$

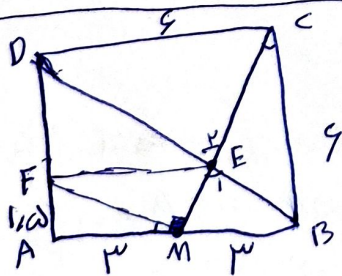
$$\left. \begin{array}{l} \hat{F}_1 = \hat{B} \\ \hat{E}_1 = \hat{A} \end{array} \right\} \Rightarrow \triangle ABC \sim \triangle DEF$$

$$\frac{BC}{DF} = \frac{AB}{EF}$$

$$\frac{1}{10\alpha} = \frac{AB}{10}$$

$$10\alpha = 10\alpha AB$$

$$AB = 9,9$$



$$\left. \begin{array}{l} \hat{C} = \hat{M} \\ \hat{B} = \hat{A} \end{array} \right\} \Rightarrow \triangle AME \sim \triangle MBC$$

$$\frac{E}{3} = \frac{3}{AF} \quad AF = 1,2$$

$$\left. \begin{array}{l} \hat{E}_1 = \hat{E}_2 \\ \hat{B} = \hat{D} \end{array} \right\} \Rightarrow \triangle MBE \sim \triangle CDE$$

$$\frac{E}{3} = \frac{CE}{ME} \quad 3^2 + 3^2 = CM^2$$

$$3\sqrt{2} : 3 = \sqrt{2} \quad EM = \sqrt{2}$$

$$(FM)^2 = 3^2 + 1,2^2 \Rightarrow FM = \frac{3\sqrt{2}}{2}$$

$$S_{\triangle FME} = \frac{\sqrt{2} \times \frac{3\sqrt{2}}{2}}{2} = \frac{1,2}{2}$$

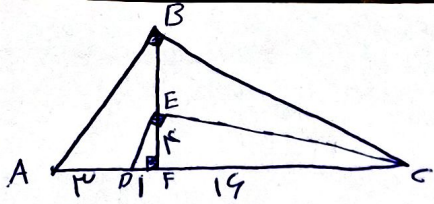
$$\left. \begin{array}{l} \hat{DAE} = \hat{ACD} \\ \hat{E}_1 = \hat{E}_1 \end{array} \right\} \Rightarrow \triangle ADE \sim \triangle AEC \Rightarrow \frac{AE}{CE} = \frac{ED}{AE}$$

$$AE^2 = ED \times CE = 10(10 + \alpha) = 100 + 10\alpha$$

$$AE^2 = AB^2 + BE^2 \Rightarrow AE^2 = 11^2 + \alpha^2 \rightarrow 11^2 + \alpha^2 = 100 + 10\alpha$$

$$\alpha^2 - 10\alpha + 11 = 0 \quad (\alpha - 3)(\alpha - 7) = 0 \quad \alpha = 3$$

$$\alpha = 7$$



$$(EF)^2 = DF \times CF$$

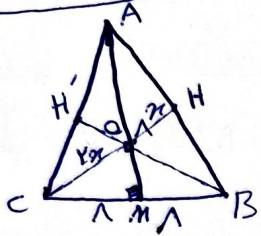
$$19 = 1 \times CF$$

$$CF = 19$$

$$(BC)^2 = CF \times CA$$

$$(BC)^2 = 19 \times 19 = 361$$

$$BC = \sqrt{361} = 19$$



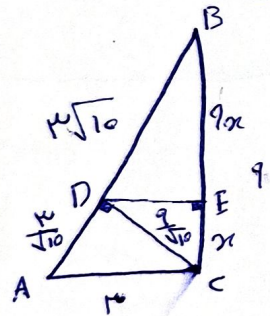
$$\frac{A}{M} \div 19 = \frac{A}{M}$$

$$\left(\frac{A}{M}\right)^2 + (1)^2 = (CO)^2$$

$$CO = \frac{19\sqrt{10}}{10} = 19$$

$$x = \frac{19\sqrt{10}}{10}$$

$$CH = 19x = 19 \times \frac{19\sqrt{10}}{10} = 19\sqrt{10}$$



$$\frac{D}{E} = \frac{C}{A} \} \Rightarrow \triangle ADC \sim \triangle ABC$$

$$\frac{19}{\sqrt{10}} = \frac{19\sqrt{10}}{10}$$

$$\frac{19\sqrt{10}}{10} = 19$$

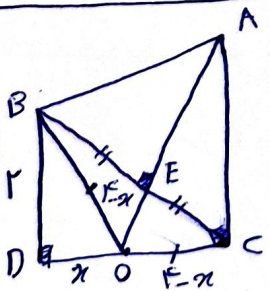
$$19x = 19$$

$$x = \frac{19}{10}$$

$$19x = BE = 19 \times \frac{19}{10} = \frac{361}{10}$$

$$\frac{19\sqrt{10}}{10} = \sqrt{10}$$

سوال 1 و 9
جایا نوشته شده
است



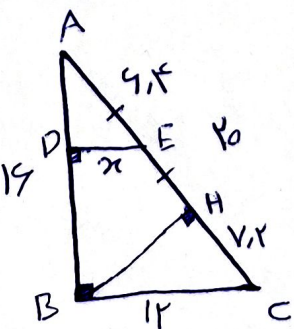
$$F + x^2 = 19 + x^2 - 19x \quad 19x = 19 \quad x = \frac{19}{10}$$

$$BC^2 = 19^2 + 19^2 = 19^2 \quad BC = 19\sqrt{2}$$

$$OE^2 = OB^2 - BE^2 = \left(\frac{19}{10}\right)^2 - \left(\frac{19}{10}\right)^2 = \frac{19^2}{100} - \frac{19^2}{100} = 0 \rightarrow OE = 0$$

$$CO^2 = OE^2 + OA^2 \rightarrow \left(\frac{19}{10}\right)^2 = \frac{19^2}{100} + OA^2 \rightarrow OA = \frac{19\sqrt{2}}{10}$$

$$S_{ABE} = \frac{\frac{19\sqrt{2}}{10} \times 19}{2} = \frac{361\sqrt{2}}{20}$$



$$\frac{C}{B} = \frac{C}{H} \} \Rightarrow \triangle BCH \sim \triangle ABC$$

$$\frac{19}{10} \times 19 = \frac{19^2}{10} = 19$$

$$19 - 19 = 0$$

$$\frac{19}{10} = \frac{19}{10}$$

$$\frac{19}{10} = \frac{19}{10}$$

$$19x = 19$$

$$x = \frac{19}{10}$$

$$DE = \frac{19}{10}$$