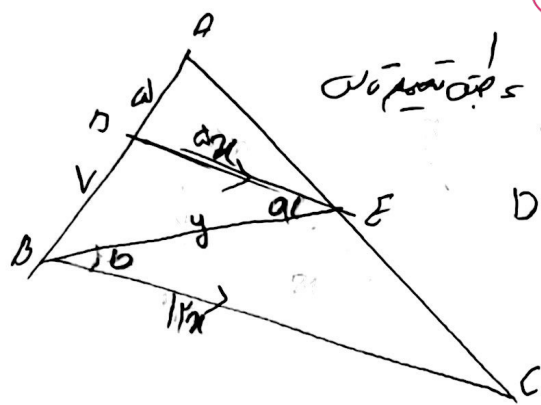


14

سوال ۲۲: مساحت مثلث



مساحت مثلث $\frac{a}{a+b} = \frac{DE}{BC} \Rightarrow \frac{a}{12} = \frac{DE}{12}$ (سوال ۱۱)

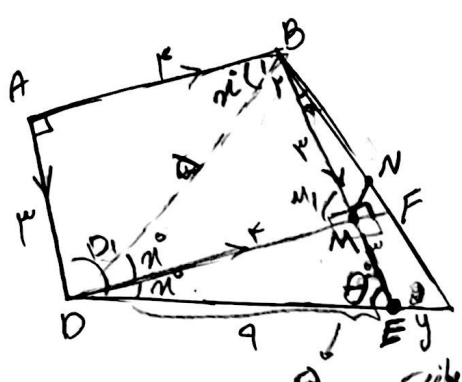
$DE \parallel BC \Rightarrow \hat{A} = \hat{B}$

$\frac{SBCE}{SBDE} = \frac{\frac{1}{2} \times \sin b \times 12 \times xy}{\frac{1}{2} \times \sin a \times a \times xy} = \frac{12}{a}$

9

سوال ۲۰

ابتدا شکل را طبق داده های سوال رسم می کنیم



$AD \parallel BM$ و $AB \parallel DM$ و $\hat{A} = 90^\circ \Rightarrow \triangle BMD = \square$
 $\hat{A} = \hat{B} = \hat{M} = \hat{D} = 90^\circ$

$AB = 4, AD = 3 \Rightarrow DB = 5$

$\angle BDC = 2\angle BDM \Rightarrow \angle BDM = \angle MDC = 20^\circ$

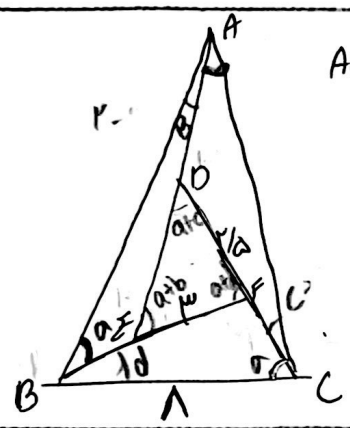
$\angle B_1 = 20^\circ$ و $\angle B_2 = \hat{A} \Rightarrow \angle BDE =$ مساحت الساقین

$DE = 5 \Leftarrow DB = DE$

$BM = ME = 4$ و $BN = NC = \frac{1}{2}BC \Rightarrow MN \parallel EC \Rightarrow \frac{BM}{BS} = \frac{MN}{EC}$

$MN = 2 \Leftarrow 9 - 5 = 4$

سوال ۳



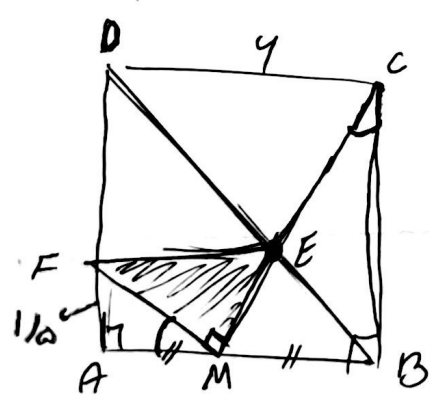
AB?

$\triangle DFE \sim \triangle ABC \xrightarrow{similarity} \frac{AB}{3} = \frac{1}{2/5}$

$1 \times \frac{4}{5} = \frac{9}{4}$

9

سوال ۴: FM



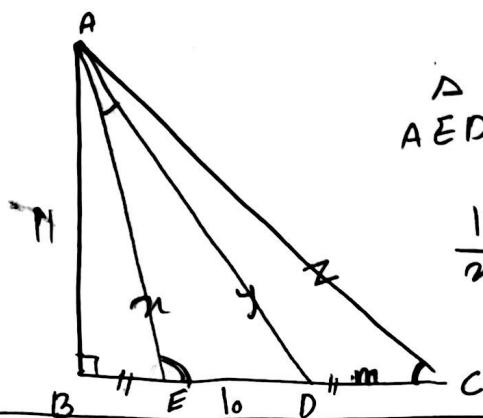
$\triangle CBM \sim \triangle AMF \Rightarrow \frac{3}{4} = \frac{?}{?} \rightarrow 1/5$

$\triangle DCE \sim \triangle MEB \Rightarrow \frac{9}{?} = \frac{?}{?}$

$CM = 3\sqrt{5} \Rightarrow \frac{3}{?} = \frac{3\sqrt{5}}{?} \times 1 = \frac{3\sqrt{5}}{?} = EM$

$\frac{EM + CE}{?} = \frac{?}{?}$

$\frac{3\sqrt{5}}{?} \times \frac{3\sqrt{5}}{?} \times \frac{1}{?} = \frac{?}{?}$



$$\triangle AED \sim \triangle AEC$$

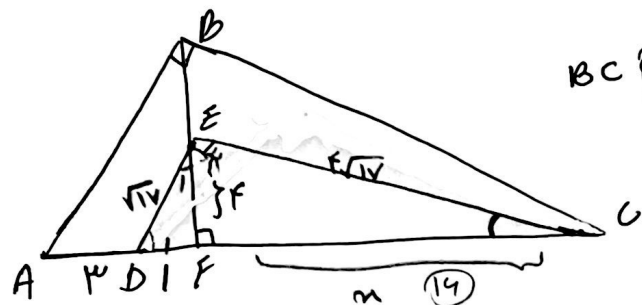
$$\frac{10}{x} = \frac{y}{z} = \frac{x}{10+m}$$

$$x^2 - 121 = m^2$$

$$m^2 + 121 = 100 + 10m$$

$$m^2 - 10m + 21 = 0 \Rightarrow m \rightarrow \text{3 or 7}$$

سؤال ۹: $E + D = 90^\circ \Rightarrow E = 90^\circ - D$



BC?

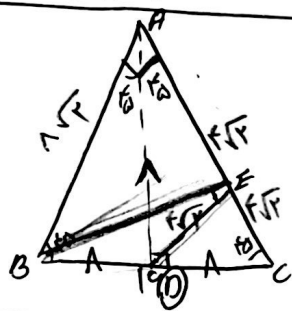
$$\triangle EDF \sim \triangle ECF \Rightarrow \frac{F}{1} = \frac{?}{\sqrt{14}} \rightarrow F = \sqrt{14}$$

$$\triangle ECF \sim \triangle EDF \Rightarrow \frac{F}{\sqrt{14}} = \frac{\sqrt{14}}{x+1}$$

$$m = 14$$

$$BF^2 = F \times 14 \Rightarrow BF = \sqrt{14}$$

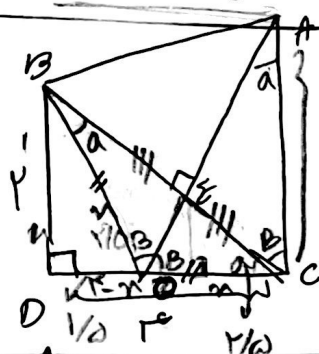
$$B^2 = 1^2 + 14^2 \Rightarrow B = \sqrt{145}$$



$$4F - 32 \leq 12 \Rightarrow F \leq 8$$

۱- میان دایره به قاعده و مساحتی است که از ارتفاع نیز می آید $\triangle ABC \sim \triangle ADE$ و $\triangle ABC \sim \triangle ADE$ چون اندازه میان نیز است $\triangle ABC \sim \triangle ADE$

$$AC = \sqrt{14} \quad BE \leq \sqrt{14}$$



$$x^2 \leq 14 - 10x \Rightarrow x \leq 2$$

$$\triangle ACO \sim \triangle ABO \Rightarrow AC \leq \frac{10}{3}$$

$$AE \times \frac{10}{9} = \frac{10}{9} \Rightarrow AE \leq \frac{10}{9}$$

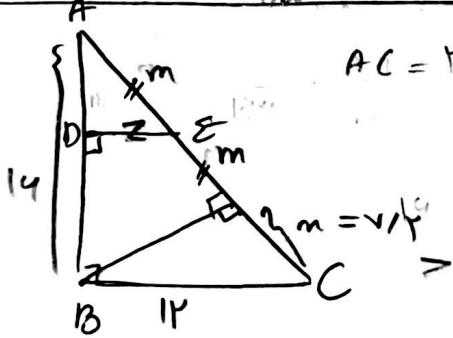
$$BE^2 \leq \frac{9}{4} \times \frac{10}{9} \Rightarrow BE \leq \frac{3}{2}$$

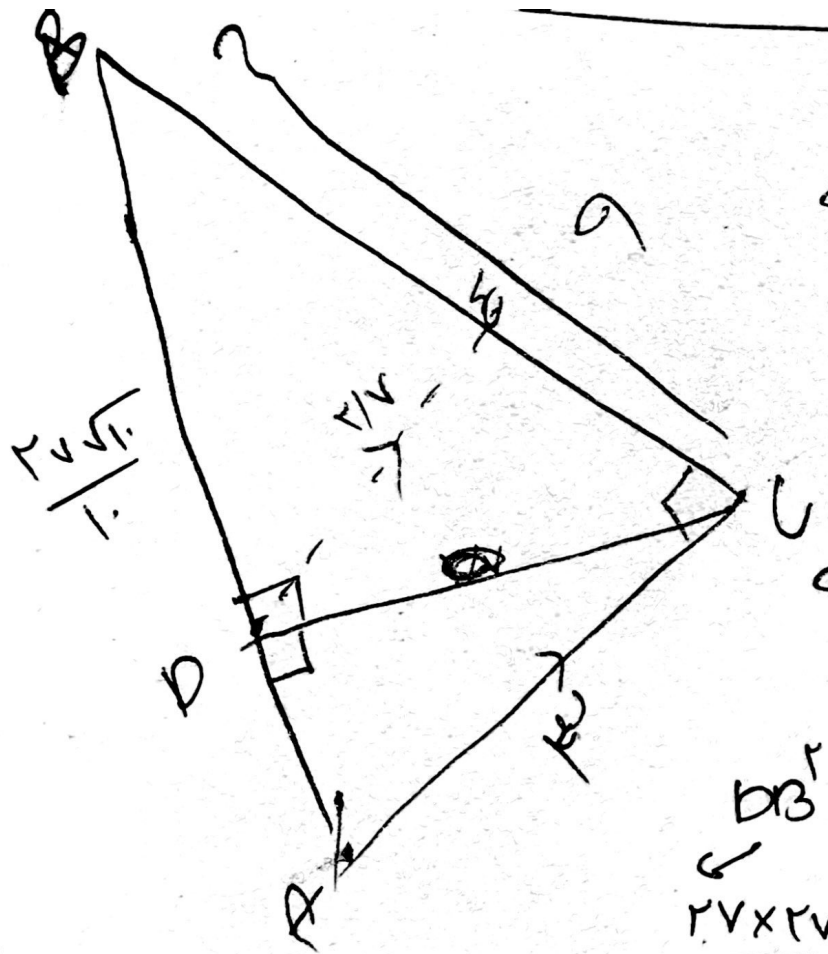
$$\triangle ABE = \frac{1}{4} \times 12 \times \frac{1}{2} \leq \frac{1}{4}$$

$$AC = 2 \Rightarrow 12 \times 12 \leq x \times 20 \Rightarrow x \leq \sqrt{12}$$

$$\Rightarrow 2m = 12/A \Rightarrow m = 4/A$$

$$\frac{4/A}{10} = \frac{z}{12} \Rightarrow z = \frac{4 \times 12 \times 2}{10} = \frac{96}{5}$$





$$q = AD \times AB \rightarrow \frac{2}{\sqrt{5}}$$

(9 د)

(5)

$$\frac{\frac{2}{\sqrt{5}}}{\frac{2}{\sqrt{5}}} \Rightarrow DB = \frac{2\sqrt{5}}{1}$$

$$\frac{\frac{2\sqrt{5}}{1}}{\frac{2\sqrt{5}}{1}} \leq \frac{DE}{\frac{2}{5}} \Rightarrow DE = \frac{2}{5}$$

$$DB^2 = (2/5)^2 + (EB)^2 \rightarrow \frac{2 \times 2}{1} \Rightarrow \text{A/I}$$

$$m_C^{\mu} = \varphi^{\mu} + \mu^{\mu} \rightarrow m_C = \mu \sqrt{\omega}$$

$$\tan F = \frac{\mu}{AF} = \tan M = \frac{BC}{MB} = \mu \rightarrow AF = \frac{\mu}{\mu}$$

$$FM^T = AF^T + AM^T \rightarrow MF = \frac{\kappa\sqrt{\omega}}{r}$$

DEC, MEB نسبت مشابه در مثلث $\frac{4}{4} = 1 \rightarrow \mu_y = \mu\sqrt{5} \rightarrow y = \sqrt{5}$

$$S_{FME} = \frac{1}{r} M_E \times M_F = \frac{10}{f}$$

$$\gamma_{\alpha+\beta} = 90^\circ$$

$$BD' + DC' = BC' \rightarrow BC = 1\sqrt{2} = 1BE = 1EC$$

$$\rightarrow BE = EC = \sqrt{2}$$

$$\frac{P}{\sqrt{a}} = \frac{F}{AE} = \frac{P\sqrt{a}}{a} \rightarrow AE = P\sqrt{a}$$

$$S_{ABE} = \frac{1}{r} AE \times BE = \Delta$$

