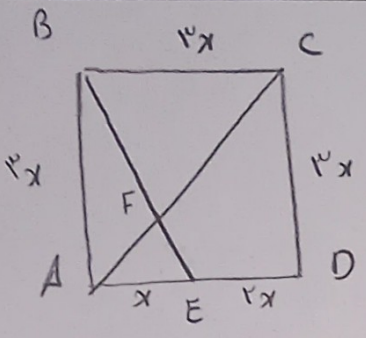
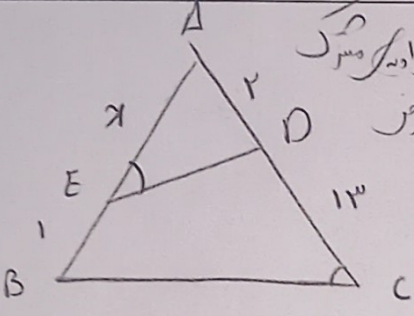


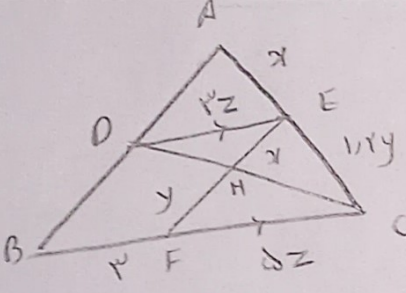


$$\triangle BCF \sim \triangle AFE \Rightarrow \frac{BC}{AE} = \frac{FC}{AF} = \frac{BF}{FE} = 3$$

$$\left. \begin{array}{l} AC = 2\sqrt{3}x \Rightarrow AF = \frac{3\sqrt{2}}{4} \\ BE = \sqrt{10}x \Rightarrow FE = \frac{\sqrt{10}x}{4} \end{array} \right\} \frac{EF}{AF} = \frac{\sqrt{10}}{3\sqrt{2}} = \frac{\sqrt{5}}{3}$$

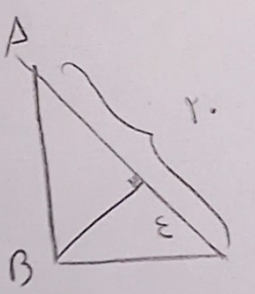


$$\triangle AED \sim \triangle ABC \Rightarrow \frac{AD}{AB} = \frac{AE}{AC} \Rightarrow \frac{2}{1} = \frac{x}{12} \Rightarrow x = 2$$



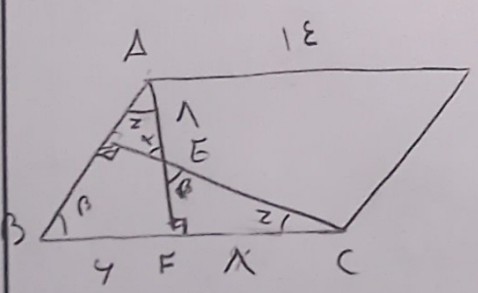
$$\triangle DEH \sim \triangle HFC \Rightarrow \frac{DE}{FC} = \frac{EH}{HF} = \frac{3}{4} \Rightarrow DE = 3z, FC = 4z$$

$$DE \parallel BC \Rightarrow \frac{DE}{BC} = \frac{AD}{AB} \Rightarrow \frac{3z}{4} = \frac{1}{3} \Rightarrow 9z = 4 \Rightarrow z = \frac{4}{9}$$



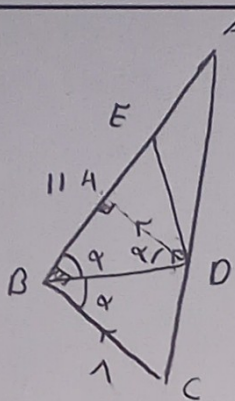
$$AB^2 = 2 \times 4 \Rightarrow AB = \sqrt{8} = 2\sqrt{2}$$

$$BC^2 = 4 \times 4 \Rightarrow BC = \sqrt{16} = 4$$



$$\triangle AEF \sim \triangle EFC \Rightarrow \frac{AF}{EF} = \frac{EF}{BF} \Rightarrow \frac{1}{1+EF} = \frac{EF}{2} \Rightarrow EF = 1$$





از میان دایره برداریم ۱۵ سانت

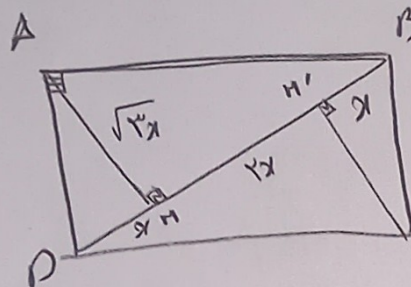
$\alpha = 45^\circ$

نسبت)  $\frac{AH}{AB} = \frac{HD}{BC} \Rightarrow \frac{AE + \frac{11}{4}}{AE + 11} = \frac{\frac{11}{4}}{8}$

$$\Rightarrow AE = \frac{330}{5} \quad \checkmark$$

⑦

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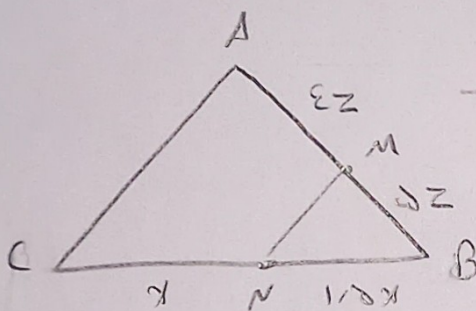
$$B \quad \left. \begin{aligned} \Delta H' &= D H \times H B \\ C H' &= B H' \times D H' \end{aligned} \right\} \Delta H = C H' = \sqrt{r} x$$

فقط  $\rightarrow AD = BC = 2x / AB = DC = 2\sqrt{3}x$

$$\frac{\sum \text{مستقل}}{\sum \Delta \theta_{\text{H}}} = \frac{\varepsilon \sqrt{x} x^2}{\frac{\sqrt{x}}{x} x^2} = 1.4$$

⑤

Y

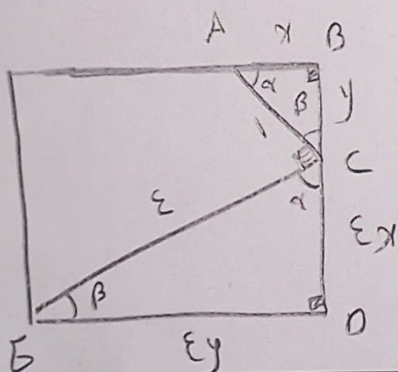


$$\frac{S_{ABC}}{S_{BMN}} = \frac{\frac{1}{\cancel{r}} \sin \beta \times AB \times CB \times \cancel{r \cdot dx}}{\frac{1}{\cancel{r}} \times \sin \beta \times MB \times AB \times \cancel{1 \cdot dx}}$$

$$\frac{AB}{AB} = \frac{q}{\sigma} \Rightarrow \frac{BM}{AM} = \frac{\sigma}{\epsilon} = 1,45$$

②

人



$\triangle ABC \cong \triangle CED \Rightarrow$

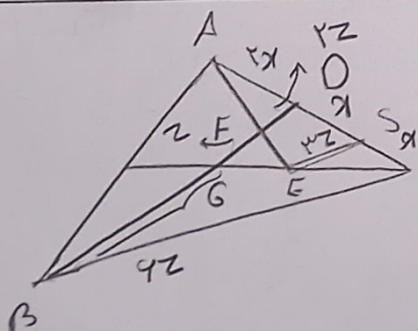
$$x_{dy} = 14 \Rightarrow x_{dy} = \frac{14 \times 14}{18} = 10.77$$

$$\Rightarrow \varepsilon y = \varepsilon x + y \Rightarrow \forall y = \varepsilon x \xrightarrow{(1)^r} qy^r = 1y^r$$

$$A^B C = x^r + y^r = 1 \Rightarrow x^r = 1 - y^r$$

7

9



$\in (BS)$   $\Rightarrow$   $DE$   $\Rightarrow$   $E$

$$\frac{r_C}{r_E} = \frac{r_C}{r_E} = \frac{r_C}{r_E} \Rightarrow r_C = r_E$$

$$J_c = \frac{DE}{ES} = \frac{\cancel{r}^2}{\cancel{r}^2} \Rightarrow \frac{BD}{FD} = \frac{92}{12}$$

0

1

~~30~~

۱۰- محل برخورد مسانه ها  $G \rightarrow BG = 2n \quad GD = n \rightarrow BD = 3n$

از A به G وصل کنیم، AE، GD، مسانه ها مثلث AGC مرتفعه:

$$\begin{aligned} GF &= \frac{2}{3}n \\ FD &= \frac{1}{3}n \end{aligned} \Rightarrow \frac{BD}{FD} = \frac{3n}{\frac{1}{3}n} = \boxed{9}$$