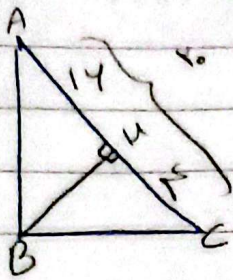


Subject:

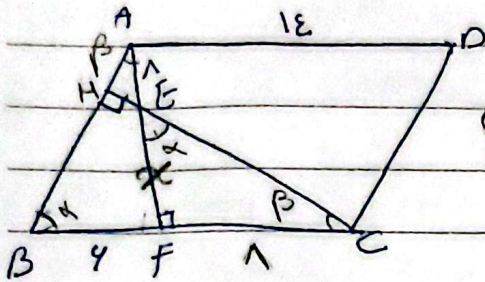


$$BC^2 = CH \times AC \Rightarrow BC = \sqrt{20 \times 14} = 14\sqrt{5} \quad (\text{مطلوب})$$

$$AB^2 = AH \times AC \Rightarrow AB = \sqrt{14 \times 20} = 14\sqrt{5}$$

$$\frac{BC}{AB} = \frac{1}{2}$$

5



$$\textcircled{1} \quad \left. \begin{array}{l} \angle B = \angle C \text{ (مستقيم)} \\ \angle H = \angle F = 90^\circ \end{array} \right\} \Rightarrow \triangle ABF \sim \triangle BCH$$

$$\Rightarrow \frac{BH}{BF} = \frac{CH}{AF} = \frac{BC}{AB} \leadsto \frac{BH}{4} = \frac{CH}{x+1}$$

$$\textcircled{2} \quad \left. \begin{array}{l} \angle C = \angle C \text{ (مستقيم)} \\ \angle F = \angle H = 90^\circ \end{array} \right\} \Rightarrow \triangle EFC \sim \triangle HCB \Rightarrow$$

$$\Rightarrow \frac{HC}{1} = \frac{BH}{x}$$

$$\frac{BC}{EC} = \frac{BH}{FE} = \frac{HC}{FC}$$

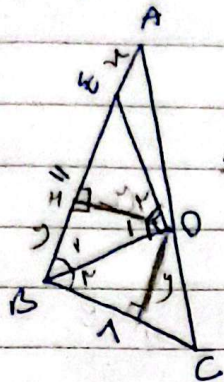
$$\textcircled{1}, \textcircled{2} \Rightarrow \frac{\frac{BH}{4}}{\frac{BH}{x}} = \frac{\frac{CH}{x+1}}{\frac{CH}{1}} \Rightarrow \frac{x}{4} = \frac{1}{x+1} \Rightarrow x^2 + 1x = 4 \Rightarrow x^2 + 1x - 4 = 0 \Rightarrow (x+1)(x-4) = 0 \Rightarrow x = 4$$

$$\Rightarrow x^2 + 1x - 4 = 0 \Rightarrow (x+1)(x-4) = 0 \Rightarrow x = 4$$

$$\Rightarrow AF = 4 + 1 = 12$$

IDEA

Subject:



$$B_1 = B_2$$

(40)

$$HD \parallel BC \Rightarrow D_1 = B_2 \Rightarrow D_1 = B_1 \Rightarrow DH = BH^*$$

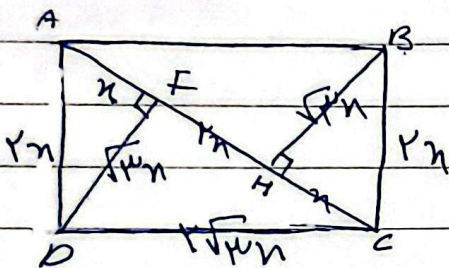
$$\hat{H} = 90^\circ \Rightarrow B_1 = D_1 \text{ and } \angle \alpha \Rightarrow B_2 \text{ and } \angle \alpha$$

(5)

$$D \in B \Rightarrow EH \times BH = DH^2 \times \frac{1}{BH} \Rightarrow EH = BH = \frac{11}{1}$$

$$HD \parallel BC \Rightarrow \frac{n + \frac{11}{1}}{n + 11} = \frac{\frac{11}{1}}{1} \Rightarrow \frac{n + \frac{11}{1}}{n + 11} = \frac{11}{14}$$

$$\Rightarrow 11n + 11 = 14n + 11 \Rightarrow n = 4/4$$



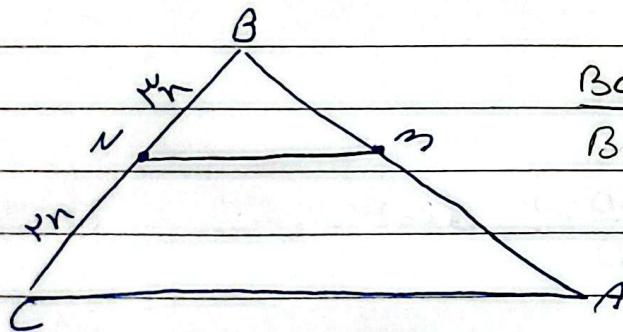
$$\frac{S_{ABCD}}{S_{BCM}} = \frac{AD \times DC}{\frac{1}{2} \times BH \times CH}$$

(40)

$$= \frac{\frac{1}{2} \times \sqrt{14} \times \sqrt{14}}{\frac{1}{2} \times \sqrt{14} \times \sqrt{14}} = 1$$

(5)

$$BC^2 = HC \times AC \Rightarrow BC = \sqrt{14}$$



$$\frac{BC \times AB \times \sin \hat{B}}{BN \times MB \times \sin \hat{B}} = 1$$

(40)

$$\frac{\omega \times AB}{\sqrt{14} \times MB} = 1$$

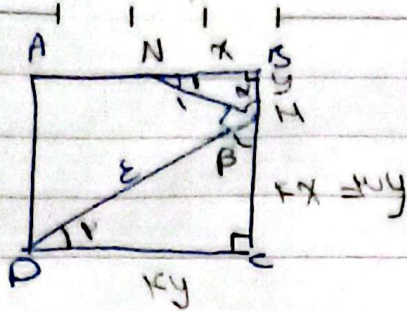
(5)

$$\frac{AB}{MB} = \frac{4}{\omega}$$

$$\frac{BM}{AB} = \frac{\omega}{4} \Rightarrow \frac{BM}{AM} = \frac{\omega}{4}$$

IDEA

Subject:



$$\alpha + \beta + 90 = 180 \Rightarrow \alpha + \beta = 90 \quad \text{سوال 9}$$

$$\Rightarrow \text{در مثل } \triangle NHB : 90 + \alpha + N_1 = 180$$

$$\Rightarrow N_1 = 90 - \alpha = \beta$$

$$\text{در مثل } \triangle DHC : 90 + \beta + D_1 = 180$$

$$\Rightarrow D_1 = 90 - \beta = \alpha$$

$$\Rightarrow \left. \begin{array}{l} \hat{B} = \hat{C} = 90 \\ \hat{H}_1 = \hat{D}_1 = \alpha \\ \hat{H}_2 = \hat{N}_1 = \beta \end{array} \right\} \Rightarrow \triangle NHB \sim \triangle DHC$$

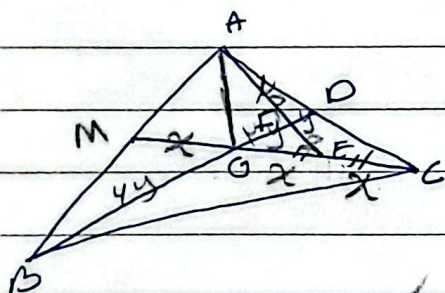
$$\frac{BN}{CH} = \frac{BH}{CD} \Rightarrow \frac{x}{y} = \frac{y}{10y} \Rightarrow \frac{x}{y} = \frac{1}{10} \Rightarrow x = \frac{y}{10}$$

$$\text{مساحت } ABCD \Rightarrow BC = DC \Rightarrow 10y = y + 9x \Rightarrow 9x = 9y \Rightarrow x = y$$

$$\text{در مثل } \triangle ACH : (DH)^2 = (CH)^2 + (DC)^2 \Rightarrow (10y)^2 = (y)^2 + (10x)^2$$

$$\Rightarrow DH = 10y = 10 \Rightarrow y = \frac{10}{10} = 1 \Rightarrow DC = 10 \times \frac{1}{10} = 1$$

$$S_{\text{مربع}} = \frac{14}{10} \times \frac{14}{10} = 1.96$$



$$\frac{BD}{FD} = ? \quad GE = EC \quad \text{سوال 10}$$

G مرکز ثقل است

CM میانه ی AB و BD میانه ی AC است

$$BG = 2GD = 2 \times 10y = 20y$$

$$GF = 2FD = 2y$$

$$\frac{BD}{FD} = \frac{20y}{2y} = 10$$