

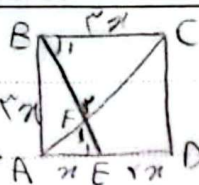
مربعات قدرتی

$$\frac{EF}{AF} = \frac{\sqrt{10}}{2\sqrt{5}} = \frac{\sqrt{2}}{2}$$

Subject: (14)

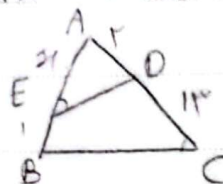
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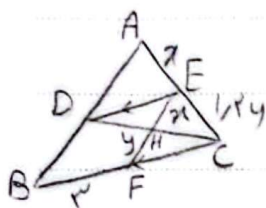
$$\left. \begin{array}{l} AD \parallel BC \\ F_1 = F_2 \\ B_1 = E_1 \end{array} \right\} \Rightarrow AFE \sim BFC \Rightarrow \frac{AF}{FE} = \frac{CF}{BF} = \frac{BF}{EF}$$

$$AC = 2\sqrt{2} \Rightarrow BE = \sqrt{10} \Rightarrow BF + EF = \sqrt{10} \Rightarrow \left\{ \begin{array}{l} BF + EF = \sqrt{10} \\ EF = \frac{\sqrt{10}}{2} \end{array} \right. \Rightarrow \left\{ \begin{array}{l} CF + AF = 2\sqrt{2} \\ AF = \frac{2\sqrt{2}}{2} \end{array} \right.$$



$$\left. \begin{array}{l} A = A \\ E = C \end{array} \right\} \Rightarrow AED \sim ABC \Rightarrow \frac{AE}{AC} = \frac{AD}{AB} \Rightarrow \frac{1}{x+1} = \frac{x}{10} \Rightarrow x^2 + x - 10 = 0$$

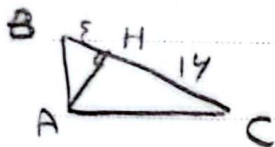
$$(x+4)(x-2) = 0 \Rightarrow x = -4 \text{ or } x = 2$$



$$xy = 2x \Rightarrow x = 2k, y = 2k \quad FC = 2m$$

$$CHF \sim DEH \Rightarrow \frac{HE}{HF} = \frac{FC}{DE} \Rightarrow DE = 2m$$

$$DE \parallel BC \Rightarrow \frac{DE}{BC} = \frac{AE}{AC} = \frac{m}{m+2m} = \frac{1}{3} \Rightarrow m = 0.1 \Rightarrow BC = 4/10$$



$$AB^2 = BH \times BC = 10 \Rightarrow \frac{CA^2}{AB^2} = 2$$

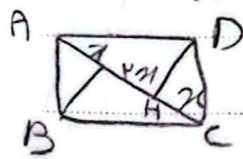
$$AC^2 = CH \times BC = 24$$

$$\frac{AC}{AB} = 2$$

$$CEF \sim ABF \Rightarrow \frac{x}{4} = \frac{1}{x+4} \Rightarrow x = 2$$

$$AF = 12$$

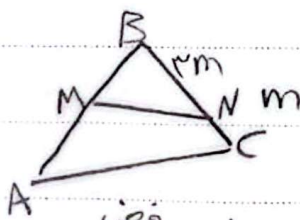
$$\frac{x+2/2}{x+11} = \frac{2/2}{11} \Rightarrow x = 4/4$$



$$\begin{array}{l} AB^2 = 2 \times 2 \times 2 \\ BC^2 = 2 \times 2 \times 2 \\ BH^2 = 2 \times 2 \times 2 \end{array}$$

$$\frac{S_{ABCD}}{S_{ABH}} = \frac{BC \times AB}{BH \times \frac{1}{2}AH}$$

$$\frac{\sqrt{12} \times 2 \times 2}{\sqrt{2} \times 2 \times \frac{1}{2} \times 2} = \frac{2\sqrt{2}}{\sqrt{2}} = 2$$



$$S_{ABC} = \frac{1}{2} BC \cdot AB \cdot \sin B$$

$$S_{BNM} = \frac{1}{2} BN \cdot BM \cdot \sin B$$

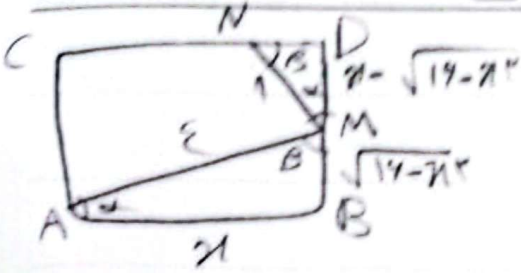
$$\frac{1}{2} BC \cdot AB \cdot \sin B = 2 \times \frac{1}{2} BN \cdot BM \cdot \sin B$$

$$2m \times AB = 9m \times BM \Rightarrow \frac{BM}{AB} = \frac{2}{9}$$

$$\frac{BM}{AB-BM} = 1/2$$

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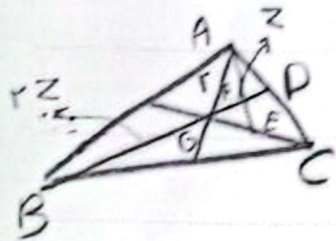
$$\triangle AMB \sim \triangle NDM \rightarrow$$

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$$\frac{DM}{AB} = \frac{ND}{MB} = \frac{AM}{NM} \Rightarrow \frac{x - \sqrt{14-x^2}}{\sqrt{14-x^2}} = \frac{1}{x}$$

$$\frac{x}{\sqrt{14-x^2}} = \frac{1}{x} \Rightarrow x^2 = \sqrt{14-x^2}$$

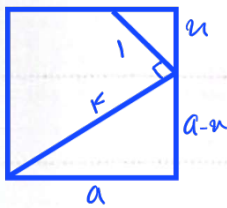
$$14x^2 = 14 - x^2$$



$$\frac{BD}{FD} = \frac{1}{2} = \frac{1}{2}$$

$$BG = 1/2, GD = 1/2 \rightarrow BD = 1$$

$$\left. \begin{array}{l} GF = 1/2 \\ FD = 1/2 \end{array} \right\} \rightarrow \frac{BD}{FD} = \frac{1}{1/2} = 2$$



$$\frac{y}{a-n} = \frac{n}{a} = \frac{1}{2} \rightarrow \left\{ \begin{array}{l} a-n = 2y \\ a-n = 2y \end{array} \right.$$

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$$2n - a = 2y \rightarrow n = \frac{2y}{2}$$

$$2^n = (a-n)^n + a^n \rightarrow n = \frac{2}{a}, a = \frac{14}{a}$$

$$S_{\square} = a^2 = \frac{14^2}{2}$$