

$$ED = 2AE \Rightarrow AE = \frac{S}{3} \quad A = (0, 0) \quad C = (5, 5) \quad E = \left(\frac{5}{3}, \frac{5}{3}\right)$$

$$AE + 2AE = S \quad ED = \frac{2S}{3} \quad D = (5, 0) \quad B = (0, 5)$$

$$y_F = x = 5 - 2x \Rightarrow x = \frac{5}{3} \quad \left\{ \begin{array}{l} y = x \leftarrow \text{معادله خط AC} \\ y = 5 - 2x \leftarrow \text{معادله خط BE} \end{array} \right.$$

$$AF \text{ دایره} \rightarrow (0, 0) \text{ تا } \left(\frac{5}{3}, \frac{5}{3}\right) \rightarrow \frac{5\sqrt{2}}{3}$$

$$EF \text{ دایره} \rightarrow \left(\frac{5}{3}, 0\right) \text{ تا } \left(\frac{5}{3}, \frac{5}{3}\right) \rightarrow \frac{5\sqrt{2}}{3}$$

$$\frac{\frac{5\sqrt{2}}{3}}{\frac{5\sqrt{2}}{3}} = \frac{\sqrt{2}}{\sqrt{2}}$$

$$AED \sim ABC$$

$$\frac{AE}{AC} = \frac{AD}{AB}$$

$$\frac{x}{10} = \frac{2}{x+1} \Rightarrow x^2 + x = 20$$

$$x = -4 \text{ و } 5 \checkmark$$

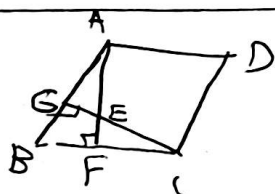
$$a^2 + b^2 = c^2 = 100$$

$$h = \frac{ab}{c}$$

$$e \leftarrow BH = \frac{a^2}{c} \quad CH = \frac{b^2}{c}$$

$$b^2 = 100 - a^2 = 100 - 1 = 99 \Rightarrow b = \sqrt{99}$$

$$\frac{b}{a} = \frac{\sqrt{99}}{\sqrt{10}} = \sqrt{10}$$



$$FC = 1$$

$$15 - 4 = 1$$

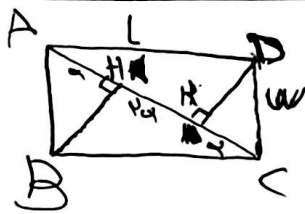
$$BGC \sim ABF \sim CEF$$

$$\frac{EF}{BF} = \frac{FC}{AF}$$

$$\frac{EF}{4} = \frac{1}{1+EF}$$

$$x^2 + 1x = 4 \Rightarrow x = -1 \text{ و } 4 \checkmark$$

$$AE + EF = 1 + 4 = 5 \checkmark$$



$$S_{ADK} = \frac{1}{2} AK \times DK = \frac{1}{2} a \times a\sqrt{2} = \frac{a^2\sqrt{2}}{2}$$

$$S_{\text{مستطیل}} : LW = 2a \times 2a\sqrt{2} = 4a^2\sqrt{2} \quad \frac{4a^2\sqrt{2}}{\frac{a^2\sqrt{2}}{2}} = 8$$

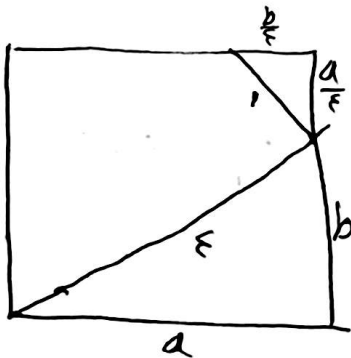
$$ADK \sim ABC$$

$$AB \parallel \sim ABC$$

$$AK = \frac{AD^2}{AC} \Rightarrow a = \frac{L^2}{\epsilon a} \Rightarrow L = 2a\sqrt{\epsilon} \quad a = \frac{W^2}{\epsilon a} \Rightarrow W = 2a$$



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$$b + \frac{a}{\epsilon} = a$$

$$a = \frac{\epsilon}{2} b, \quad a^2 + b^2 = 14 \quad \frac{14}{9} b^2 + b^2 = \frac{14}{9} b^2 = 14$$

$$\frac{14}{9} b^2 = 14 \quad b^2 = 9 \quad b = 3$$

$$a = \frac{14}{9}, \quad a^2 = \frac{196}{81}$$