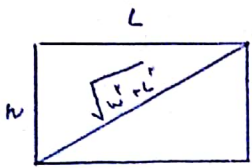


نسبت طول به عرض مستطیل در مستطیل جدید: $\frac{L}{w} = \frac{1+\sqrt{5}}{2} = \frac{L}{\varepsilon} \Rightarrow$ $L = 2(1+\sqrt{5})$

$\frac{S_{\text{مستطیل طلایی}}}{S_{\text{مستطیل اریست}}} = \frac{\cancel{2} \times \cancel{2} \times \cancel{2} \times (1+\sqrt{5})}{\cancel{2} \times \cancel{2} \times \cancel{2} \times \varepsilon} = \boxed{0,4(\sqrt{5}+1)}$



$\frac{\sqrt{w^2 + L^2}}{L} = \frac{1+\sqrt{5}}{2} \xrightarrow{\text{مربع}} \frac{w^2 + L^2}{L^2} = \frac{1+\sqrt{5}}{2} = \frac{1(1+\sqrt{5})}{2}$

$2w^2 + 2L^2 = (1+\sqrt{5})L^2 \rightarrow 2w^2 = \frac{L^2 + L^2\sqrt{5}}{2} = \frac{L^2(1+\sqrt{5})}{2}$

$w^2 = L^2 \left(\frac{1+\sqrt{5}}{2} \right) \Rightarrow \frac{L^2}{w^2} = \frac{\sqrt{5}-1}{2}$

$4a + \sqrt{4a^2 + 4a} = 2 \Rightarrow \sqrt{4a^2 + 4a} = 2 - 4a \xrightarrow{\text{مربع}} 4a^2 + 4a = 4a^2 - 16a + 4 \Rightarrow$

$20a^2 - 14a + 4 = 0 \quad \Delta = 196 - 4(20)(4) = 144 \quad a = \frac{14 \pm \sqrt{144}}{40} \rightarrow a = 2$
 $\downarrow a = \frac{1}{2}$

$\Rightarrow a = 2 \quad 4 + \sqrt{4+4} = 4 \neq 2 \quad \text{رد}$

$\Rightarrow a = \frac{1}{2} \quad \frac{4}{2} + \sqrt{\frac{4}{4} + \frac{4}{2}} = \frac{4}{2} + \sqrt{\frac{4+8}{2}} = \frac{4}{2} + \sqrt{\frac{12}{2}} = \frac{4}{2} + \sqrt{6} = 2 \quad \text{رد}$
 $\frac{\frac{1}{2} + \frac{1}{2}}{\frac{1}{2}} = \frac{1}{\frac{1}{2}} = \boxed{2}$

$\frac{\sqrt{x+1}}{\sqrt{n-1}+3} - \frac{\sqrt{x+1}}{3-\sqrt{n-1}} = \frac{n-1}{\sqrt{n-1}} \rightarrow \frac{-2\sqrt{x+1}}{10-x} = \frac{n-1}{\sqrt{n-1}} \Rightarrow -2\sqrt{x+1} = \frac{(n-1)(n+1)}{(n-1)^2}$

$\Rightarrow -2\sqrt{x+1} = (1-n) \xrightarrow{\text{مربع}} 4(x+1) = (1-n)^2 \Rightarrow 4x+4 = 1-2n+n^2$

$n^2 - 2nm + 4 = 0 \quad \Delta = 4 - 4(4) = -12$

$n = \frac{2 \pm \sqrt{-12}}{2} \rightarrow \boxed{n = 1 \pm \sqrt{3}}$

$x = \frac{1(1 \pm \sqrt{3})}{4} = \frac{1 \pm \sqrt{3}}{4} \quad n = \frac{1(1 - \sqrt{3})}{4} = \frac{1 - \sqrt{3}}{4}$

$\frac{1}{\sqrt{r-x}+2} - \frac{1}{2-\sqrt{r-x}} = \frac{r-n}{\omega\sqrt{r-n}} \rightarrow \frac{1}{2+x} - \frac{1}{2-x} = \frac{t^2}{\omega t} \Rightarrow \frac{-2t}{\varepsilon-t^2} = \frac{t}{\omega} \rightarrow -10 = \varepsilon-t^2$
 $t^2 = 10 \Rightarrow r-n = 10$
 $x = -12$

درست نیست

$$\frac{1}{x^r} + \frac{1}{(1-x)^r} = \frac{14}{9} \rightarrow \frac{x^r - x^{r+1}}{x^r(1-x)^r} = \frac{14}{9}$$

$$(t = x(1-x)) \Rightarrow \frac{1-x^r}{x^r} = \frac{14}{9} \rightarrow 14x^r + 11x - 9 = 0 \quad \Delta = 4r^2 - 4(14)(11) = 4 \cdot 152$$

$$t = \frac{-11 \pm \sqrt{4 \cdot 152}}{28} \quad \begin{cases} t = \frac{r}{14} \rightarrow x(1-x) = \frac{r}{14} \Rightarrow x = \frac{1}{2}, x = \frac{r}{2} \\ t = -\frac{r}{10} \rightarrow x(1-x) = -\frac{r}{10} \Rightarrow x = \frac{1}{2} + \frac{\sqrt{100}}{10}, x = \frac{1}{2} - \frac{\sqrt{100}}{10} \end{cases}$$

$$\frac{1}{2} + \frac{r}{2} + \frac{1}{2} + \frac{\sqrt{100}}{10} + \frac{1}{2} - \frac{\sqrt{100}}{10} = (2)$$

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$$\sqrt{x + \sqrt{-x^2 + 2x + 1}} + \sqrt{x + \sqrt{-x^2 + 4x - 1}} = x + 2 \quad x + 2 \geq 0 \Rightarrow x \geq -2 \quad \textcircled{I}$$

$$-x^2 + 2x + 1 \geq 0 \Rightarrow -(x^2 - 2x - 1) \geq 0 \Rightarrow -(x-2)(x+1) \geq 0 \Rightarrow -(x-2)(x+1)(x+3) \geq 0$$

$$\frac{-3 \quad 2 \quad 1}{-1 \quad -1 \quad -1} \quad x \in (-\infty, -1] \cup [2, \infty) \quad \textcircled{II} \quad -x^2 + 4x - 1 \geq 0 \Rightarrow -(x-2)(x-2) \geq 0$$

$$\frac{x \quad 2}{+1 \quad -1 \quad -1} \quad x \in [2, 2] \quad \textcircled{III}$$

$$\textcircled{I} \cap \textcircled{II} \cap \textcircled{III} \rightarrow x = 2 \Rightarrow \sqrt{2 + \sqrt{0}} + \sqrt{2 + \sqrt{0}} = 2 + 2$$

$$|x=2| \text{ جواب است}$$

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$$y = |m+2| + |m-1| \rightarrow \begin{cases} m+1 & , m \geq 1 \\ 2 & , -2 \leq m < 1 \\ -m-1 & , m < -2 \end{cases}$$

$$m \geq 1 \rightarrow m+1 = \frac{14-m}{2} \rightarrow 4m+2 = 14-m \rightarrow 5m = 12 \Rightarrow m = \frac{12}{5} \quad y = 2(\frac{12}{5}) + 1 = \frac{29}{5} \quad A(\frac{12}{5}, \frac{29}{5})$$

$$m < -2 \rightarrow -m-1 = \frac{14-m}{2} \rightarrow -4m-2 = 14-m \rightarrow -3m = 16 \Rightarrow m = -\frac{16}{3} \quad y = -2(-\frac{16}{3}) - 1 = \frac{31}{3} \quad B(-\frac{16}{3}, \frac{31}{3})$$

$$AB = \sqrt{(\frac{12}{5} + \frac{16}{3})^2 + (\frac{29}{5} - \frac{31}{3})^2} = \sqrt{4 + 4} = \sqrt{8} = 2\sqrt{2}$$

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$$y = \sqrt{x^2 - 2x + 2} = \sqrt{(x-1)^2 + 1} = |m-1|$$

$$y = \frac{1}{2}x + 2$$

$$m-1 = \frac{1}{2}m + 2 \rightarrow 2m-2 = m+4 \rightarrow m = 6 \quad y = 5$$

$$1-m = \frac{1}{2}m + 2 \rightarrow 2-2m = m+4 \rightarrow -m = 2 \Rightarrow m = -2 \quad y = 1$$

$$S = \frac{1}{2} \begin{vmatrix} 2 & 0 & 1 \\ 0 & 2 & 1 \\ 1 & 4 & 1 \end{vmatrix} =$$

$$\frac{1}{2} |(2-14-12)| = \frac{1}{2} \cdot 24 = 12$$

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موز $\rightarrow m$
 زعفران $\rightarrow m+9$
 سیب $\rightarrow 2 \cdot \text{سیب}$

$$\frac{1}{m} + \frac{1}{m+9} = \frac{1}{20} \rightarrow \frac{m+9+m}{m^2+9m} = \frac{1}{20} \rightarrow m^2+9m = 20m+180$$

$$-m^2 - 11m - 180 = 0 \quad \Delta = 441 - 4(180) = 141$$

$$m = \frac{-11 \pm \sqrt{141}}{-2} \quad \begin{cases} m = \frac{-11 + \sqrt{141}}{-2} = 4 \quad \text{و } 0 \\ m = \frac{-11 - \sqrt{141}}{-2} = -9 \quad \text{و } 0 \end{cases}$$

$$\Rightarrow \begin{cases} \text{موز} = 4 \text{ سیب} \\ \text{زعفران} = 4 \text{ سیب} \end{cases}$$

جواب 44

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