

$$\frac{x^2 + (1-x)^2}{x^2(1-x)^2} = \frac{2x^2 - 2x + 1}{x^2(1-x)^2} = \frac{1}{x} \Rightarrow 2x^2 - 2x + 1 = \frac{1}{x} \cdot x^2(1-x)^2$$

$$-\frac{1}{2} (2x-1)(2x-1)(x^2-2x+1) = 0 \Rightarrow x = \frac{1}{2}$$

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

$$-x^2 + 4x - 4 \geq 0 \rightarrow x^2 - 4x + 4 \leq 0 \rightarrow x \in [2, 2] \quad (1) \quad (1) \cap (2) = [2, 2] \cap [2, 2] = 2$$

$$-x^2 + 2x^2 + 2x - 1 \geq 0 \rightarrow x(x-1)(x+1) \geq 0 \quad (2) \quad x \in [2, \infty)$$

$$\sqrt{2} + \sqrt{(2)^2 + 2(2) - 1} = 2 + 1 = 3$$

$$y = \frac{14-x}{x}$$

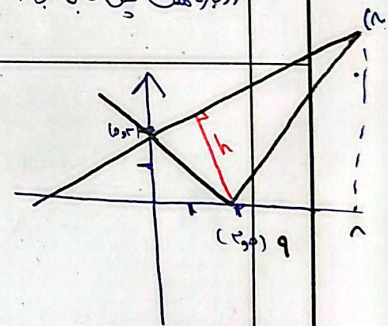
$$(1) x > 1 \rightarrow |x+2| = x+2 \quad |x-1| = x-1 \rightarrow x+2+x-1 = 2x+1 \quad 2x+1 = \frac{14-x}{x} \rightarrow x=2 \quad y=5$$

$$(2) -2 \leq x < 1 \rightarrow |x+2| = x+2 \quad |x-1| = 1-x \rightarrow x+2+1-x = 3 \rightarrow 3 = \frac{14-x}{x} \rightarrow x=1 \quad y=13$$

$$(3) x < -2 \rightarrow |x+2| = -(x+2) \quad |x-1| = -(x-1) \rightarrow -x-2-x+1 = -2x-1 \rightarrow -2x-1 = \frac{14-x}{x} \rightarrow -4x-3 = 14-x \rightarrow x=-5 \quad y=3$$

$$AB = \sqrt{(2+5)^2 + (5-3)^2} = \sqrt{49+4} = \sqrt{53}$$

$$B = (-2, 3)$$



$$y = \frac{1}{x} \rightarrow -\frac{1}{x} + y = 0 \rightarrow \frac{(-1-2)}{\frac{1}{2}+1} = \frac{y}{\frac{1}{2}} = h$$

$$\Rightarrow \sqrt{9+4} = \sqrt{13} = h$$

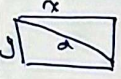
$$S = \frac{1}{2} \times \sqrt{13} \times \frac{1}{2} = \frac{\sqrt{13}}{4}$$

$$B = \frac{1}{x}, F = \frac{1}{x+2} \rightarrow \frac{1}{x} + \frac{1}{x+2} = \frac{1}{10} \rightarrow \frac{x+2+x}{x^2+2x} = \frac{1}{10} \rightarrow x^2+2x = 10x+20$$

$$x^2-8x-20 = 0 \rightarrow (x-10)(x+2) = 0 \rightarrow x=10 \quad x=-2$$

نام و نام خانوادگی کلاس پاسخنامه تشریحی تکلیف شماره ۱۸۰۰

$\frac{x}{y} = \frac{a}{2} \rightarrow y = \frac{2x}{a}$ طول = y عرض = x
 $\frac{x+a}{y} = \frac{\sqrt{a+1}}{2} \rightarrow \frac{a}{2} + \frac{a}{y} = \frac{\sqrt{a+1}}{2} \Rightarrow \frac{a}{y} = \frac{\sqrt{a+1}}{2} - \frac{a}{2}$ $\frac{a}{y} = \frac{\sqrt{a+1}}{2} \Rightarrow \frac{a}{2} \times \frac{a}{x} = \frac{\sqrt{a+1}}{2}$
 $\frac{a}{x} = \frac{\sqrt{a+1}}{a}$
 نسبت مساوی: $\frac{x+a}{xy} \rightarrow 1 + \frac{a}{x} \rightarrow 1 + \frac{\sqrt{a+1}}{a} = \frac{\sqrt{a+1}}{a}$


 $(\frac{x}{y})^2 = ? \quad d^2 = x^2 + y^2 \rightarrow d = \sqrt{x^2 + y^2}$
 $\frac{d}{x} = \frac{\sqrt{a+1}}{2} \rightarrow \frac{\sqrt{x^2 + y^2}}{x} = \frac{\sqrt{a+1}}{2} \rightarrow \frac{x^2 + y^2}{x^2} = \frac{a+1}{4}$ $1 + (\frac{y}{x})^2 = \frac{a+1}{4}$
 $\rightarrow (\frac{y}{x})^2 = \frac{a+1}{4} - 1 = \frac{a+1-4}{4} = \frac{a-3}{4} = \frac{1+\sqrt{a}}{4}$

$\sqrt{a^2 + 8a} = 2 - 3a \xrightarrow{\text{مربع کردن}} a^2 + 8a = 4 - 12a + 9a^2 \rightarrow 8a^2 - 14a + 4 = 0 \rightarrow 4a^2 - 7a + 2 = 0$
 $\rightarrow (4a-3)(a-2) = 0 \Rightarrow \begin{cases} a=2 & \text{و } 4-14+2 = -8 \neq 0 \\ a=\frac{3}{4} & \rightarrow \frac{3}{4} + \sqrt{\frac{3}{4} + 1} = \frac{3}{4} + \frac{\sqrt{7}}{2} = 2 \checkmark \end{cases}$
 $\frac{x+1}{a} = 1 + \frac{1}{a} \rightarrow 1 + \frac{1}{\frac{3}{4}} \rightarrow \frac{a}{3} = \frac{7}{3}$

طرف راست معادله: $\frac{\sqrt{x+1} - \sqrt{x-1}}{9-x+1} = \frac{\sqrt{x-1} - \sqrt{x+1}}{9-x+1} = \frac{-2\sqrt{x^2-1}}{10-x} = \frac{-2\sqrt{x^2-1}}{10-x} = \frac{x-1}{\sqrt{x-1}}$
 $-2\sqrt{x^2-1}(\sqrt{x+1}) = (x-1)(10-x) \rightarrow -2(x^2-1)\sqrt{x+1} = (x-1)(10-x)$ ①
 $\Delta > 0 \rightarrow \frac{-b \pm \sqrt{b^2 - 4ac}}{2a} \rightarrow \frac{-6 \pm \sqrt{36-48}}{4} \rightarrow \frac{-6 \pm \sqrt{12}}{4}$ ②

معادله: $\frac{2-\sqrt{2-x}}{2+x} = \frac{2+\sqrt{2-x}}{2+x} = \frac{-2\sqrt{2-x}}{2+x} = \frac{2-x}{2\sqrt{2-x}}$ $2-x = -10(2-x)$
 $x^2 + 6x - 28 = 0$
 $x^2 + 6x - 28 = 0 \rightarrow (x-2)(x+14) = 0 \rightarrow \begin{cases} x=2 \checkmark \\ x=-14 \checkmark \end{cases}$ نکته: $x=-14$ مسبقاً رد