

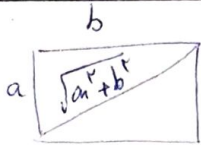
19, 75

نام و نام خانوادگی پاسخنانه تشریحی تکلیف شماره ۱.۸.۸. کلاس
 نام و نام خانوادگی پاسخنانه تشریحی تکلیف شماره ۱.۸.۸. کلاس

$$\frac{1+\sqrt{5}}{2} = \frac{x}{2} = \frac{\sqrt{5}+1}{2} \Rightarrow x = 2(\sqrt{5}+1)$$

$$\frac{S_2}{S_1} = \frac{4 \times 2(\sqrt{5}+1)}{4 \times 5} = \frac{2}{5}(\sqrt{5}+1)$$

۱



$$\frac{\sqrt{a^2+b^2}}{b} = \frac{\sqrt{5}+1}{2} \Rightarrow \frac{a^2+b^2}{b^2} = \frac{5+2\sqrt{5}+1}{4} = \frac{6+2\sqrt{5}}{4} = \frac{3+\sqrt{5}}{2}$$

$$\left(\frac{a}{b}\right)^2 + 1 = \frac{3+\sqrt{5}}{2} \Rightarrow \left(\frac{a}{b}\right)^2 = \frac{1+\sqrt{5}}{2} \Rightarrow \left(\frac{b}{a}\right)^2 = \frac{2}{1+\sqrt{5}}$$

۲

$$3a + \sqrt{4a^2 + 9a} = 2$$

$$\sqrt{4a^2 + 9a} = 2 - 3a \quad (*)^2$$

$$4a^2 + 9a = 4 - 12a + 9a^2 \Rightarrow$$

$$5a^2 - 14a + 4 = 0$$

$$\Delta = 196 - 80 = 116 \Rightarrow x_1, x_2 = \frac{14 \pm \sqrt{116}}{10} \Rightarrow x = \frac{7 \pm \sqrt{29}}{5}$$

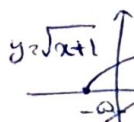
$$\frac{a+1}{a} = \frac{\frac{7}{5} + 1}{\frac{7}{5}} = \frac{12}{7} = \frac{12}{7}$$

۳

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

$$\frac{2\sqrt{x+1} - \sqrt{x+1} - \sqrt{x+1} - 2\sqrt{x+1}}{4 - (x-1)} = \sqrt{x-1} \Rightarrow \frac{-2\sqrt{x+1}}{5-x} = \sqrt{x-1}$$

$$\Rightarrow \sqrt{x-1} \neq 0 \Rightarrow \sqrt{x+1} = \frac{x}{5-x}$$



بازرسی می‌کنیم که آیا این جواب در دامنه قرار می‌گیرد یا نه. $x = -1$ در دامنه قرار می‌گیرد.

$$\sqrt{2-x} = a \Rightarrow \frac{1}{a+2} - \frac{1}{2-a} = \frac{a^2}{5a} = 0 \Rightarrow \frac{-2}{2-a^2} = \frac{a}{5} \Rightarrow$$

$$2 - a^2 = -10 \Rightarrow a^2 = 12 \Rightarrow 2 - x = 12 \Rightarrow x = -10$$

$x = -10$ ریشه معنی است پس معادله هیچ ریشه مثبت ندارد

۱۱, ۷۵

$$\frac{1}{x^2} + \frac{1}{(1-x)^2} = \frac{14}{9} \Rightarrow \left(\frac{1}{x} + \frac{1}{1-x} \right)^2 - 2 \left(\frac{1}{x(1-x)} \right) = \frac{14}{9} \Rightarrow$$

$$t^2 - 2t = \frac{14}{9} \Rightarrow t^2 - 2t + 1 = \frac{14}{9} + 1 = \frac{23}{9}$$

$$\left(\frac{1}{x(1-x)} \right)^2 - 2 \left(\frac{1}{x(1-x)} \right) = \frac{14}{9} \Rightarrow \left(\frac{1}{x(1-x)} \right)^2 - 2t = \frac{14}{9} \Rightarrow$$

$$\begin{cases} t-1 = \frac{14}{9} \Rightarrow t = \frac{23}{9} \\ t-1 = -\frac{14}{9} \Rightarrow t = -\frac{5}{9} \end{cases} \quad \frac{1}{x(1-x)} = \frac{14}{9} \Rightarrow -x^2 + x = \frac{14}{9} \Rightarrow S_1$$

$$\frac{1}{x(1-x)} = -\frac{14}{9} \Rightarrow -x^2 + x = -\frac{14}{9} \Rightarrow S_1 + S_2 = 2$$

$$\sqrt{x} + \sqrt{-x^2 + 2x + 1} + \sqrt{x^2 + \sqrt{-x^2 + 2x + 1} - 1} = x + 2$$

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

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

$$x=1 \quad (2-x)(2+x) \quad x=-2$$

$$-2 < x < 2$$

$$-2 < x < 2 \Rightarrow [2, +\infty) \cup \{-2\}$$

$$\Rightarrow x=2 \text{ Solution}$$

$$K = \lim_{x \rightarrow \infty} \frac{2}{x}$$

$$y = |x+2| + |x-1|$$

$$3y + x = 14$$

$$\begin{cases} 3y + x = 14 \\ y - 2x = 1 \end{cases} \Rightarrow (2x+1) = -x+14 \Rightarrow 4x+1 = -x+14 \Rightarrow 5x = 13 \Rightarrow x = \frac{13}{5} \Rightarrow y = \frac{17}{5}$$

$$\begin{cases} 3y + x = 14 \\ y = 2 \end{cases} \Rightarrow \text{C.O.S.}$$

$$\begin{cases} 3y + x = 14 \\ 3x + y = -1 \end{cases} \Rightarrow \begin{matrix} -x+14 = 3(-3x-1) \Rightarrow \\ -x+14 = -9x-3 \Rightarrow 8x = -17 \Rightarrow x = -\frac{17}{8} \end{matrix}$$

$$x = -\frac{17}{8} \quad y = \frac{17}{8}$$

$$y = \sqrt{x^2 - 4x + 4}$$

$$y = \sqrt{(x-2)^2} \Rightarrow y = |x-2|$$

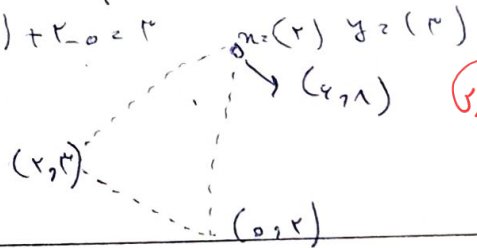
$$\begin{cases} y = x-2 \\ y = \frac{1}{2}x+2 \end{cases} \Rightarrow y=4 \quad x=1$$

$$\begin{cases} y = -x+2 \\ y = \frac{1}{2}x+2 \end{cases} \Rightarrow y=2 \quad x=0$$

$$m = \frac{4-2}{1-0} = 2 \Rightarrow y = 2x+2 \quad (2, 2) \quad L = (1)(2) + 2 = 4$$

$$\text{مساحة المثلث} = \frac{1}{2}bh = \frac{1}{2} \times 4 \times 2 = 4$$

$$S_{\Delta} = \frac{1}{2}bh = \frac{1}{2} \times 4 \times 2 = 4$$



$$\text{مساحة المثلث} = \frac{1}{2}bh = \frac{1}{2} \times 4 \times 2 = 4$$

$$\Rightarrow x+9 = \frac{1}{x+9}$$

$$\frac{1}{x} + \frac{1}{x+9} = \frac{1}{x} \Rightarrow \frac{x+9}{x^2+9x} = \frac{1}{x} \Rightarrow$$

$$x+14 = x^2+9x \Rightarrow$$

$$x^2 - 8x - 14 = 0 \Rightarrow$$

$$x(x-8) = 14 \Rightarrow x = 8$$