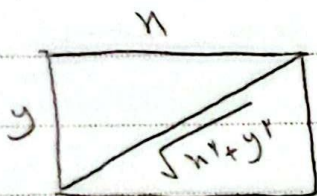


۲۰

$$\frac{n}{y} = \frac{\omega}{\varepsilon} \Rightarrow n_1 = \frac{\omega}{\varepsilon} y \quad \frac{n_2}{y} = \frac{1+\sqrt{5}}{2} \rightarrow n_2 = \frac{1+\sqrt{5}}{2} y \quad \text{سوال ۱۰}$$

$$\frac{S_2}{S_1} = \frac{\frac{1+\sqrt{5}}{2} \times y \times y}{\frac{\omega}{\varepsilon} y \times y} = \frac{1+\sqrt{5}}{2} \times \frac{\varepsilon}{\omega} = 0.618 (1+\sqrt{5})$$



$$\frac{\sqrt{n^2 + y^2}}{n} = \frac{1+\sqrt{5}}{2}$$

$$\xrightarrow{\text{مربع}} \frac{n^2 + y^2}{n^2} = \frac{4+2\sqrt{5}}{4}$$

$$\rightarrow 1 + \frac{y^2}{n^2} = \frac{1+\sqrt{5}}{2} \rightarrow \frac{y^2}{n^2} = \frac{1+\sqrt{5}-2}{2}$$

$$\Rightarrow \frac{n^2}{y^2} = \frac{2}{1+\sqrt{5}} \times \frac{1-\sqrt{5}}{1-\sqrt{5}} = \frac{2-2\sqrt{5}}{-4} \rightarrow \frac{1-\sqrt{5}}{-2} = \frac{\sqrt{5}-1}{2}$$

$$3a + \sqrt{2a^2 + \varepsilon a} = 2$$

$$\sqrt{2a^2 + \varepsilon a} = 2 - 3a \xrightarrow{\text{مربع}} 2a^2 + \varepsilon a = 4 - 12a + 9a^2 - 12a$$

$$7a^2 - 14a + \varepsilon \rightarrow a = \frac{2}{7}, \frac{\varepsilon}{7} \Rightarrow \frac{a+1}{a} = \frac{9}{7} \times \frac{7}{2} = \frac{9}{2}$$

$$7a^2 - 14a + 1$$

$$\text{Arman } (a-1)(a-2) = 0$$

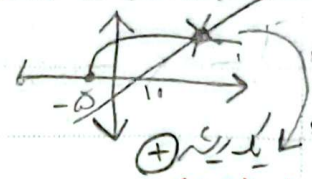
(ریشه های این معادله)
۱ و ۲

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

$$\frac{3\sqrt{n+1} - \sqrt{n^2-1} - \sqrt{n^2-1} - 3\sqrt{n+1}}{10-n} = \sqrt{n-1}$$

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

$$\rightarrow \sqrt{n+1} = \frac{n}{2} - 5 \rightarrow$$



$$\frac{1}{\sqrt{2-n}+2} + \frac{1}{\sqrt{2-n}-2} = \frac{\sqrt{2-n}-2+\sqrt{2-n}+2}{2-n-4}$$

$$= \frac{2\sqrt{2-n}}{-2-n} = \frac{2-n}{5\sqrt{2-n}} \rightarrow \frac{2\sqrt{2-n}}{(n+2)^2} = \frac{(n-2)^2}{25|n-2|}$$

$$(n+2)^2(n-2)^2 = 100(n-2)^2 \rightarrow n^2+4n+4 = 100$$

$$n^2+4n-96$$

$$(n+12)(n-8) = 0$$

$$\rightarrow n = -12, 8$$

ساختن

همیشه مثبت دارم

$$\frac{1}{n^2} + \frac{1}{(1-n)^2} = \frac{14}{9} \rightarrow \frac{(1-n)^2 + n^2}{n^2(1-n)^2} = \frac{14}{9}$$

$$\frac{n^2-2n+1+n^2}{(n(1-n))^2} = \frac{2n^2-2n+1}{(n-n^2)^2} = \frac{2(n^2-n)+1}{(n^2-n)^2} = \frac{14}{9}$$

$$\frac{2t+1}{t^2} = \frac{14}{9} \rightarrow 14t^2 = 18t+9$$

$$\Rightarrow t = \frac{18 \pm \sqrt{4014}}{28} \rightarrow t_1 = 0.14 \rightarrow n^2-n-\frac{9}{10} \rightarrow S_1 = 1$$

Arman

$$1+1=2$$

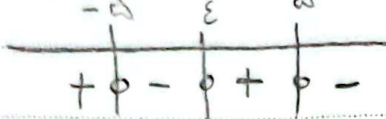
$$\rightarrow \frac{14}{n^2-n+\frac{9}{10}} \rightarrow S_2 = 1$$

(سوال ۷)

$$\sqrt{n + \sqrt{-n^2 + 4n + 1}} + \sqrt{n^2 + \sqrt{-n^2 + 4n + 1}} = n + 2$$

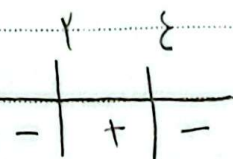
$$-n^2(n-3) + 20(n-3)$$

$$(n-3)(n+2)(n-3) \geq 0$$

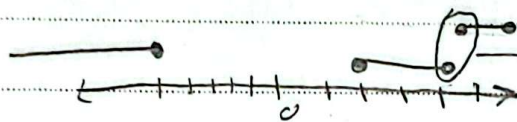


$$\rightarrow D_f \subseteq (-\infty, -2] \cup [3, \infty)$$

$$-(n^2 - 4n + 1) = -(n-2)(n-2) \geq 0$$



$$\Rightarrow D_f \subseteq [2, 2]$$



تحقق از سرانجام
با

$$\sqrt{2} + \sqrt{14} = 4 \quad \checkmark$$

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

$$y = \frac{14-n}{\mu}$$

$$|n+2| + |n-1| = \frac{14-n}{\mu}$$

(سوال ۸)

(۳)

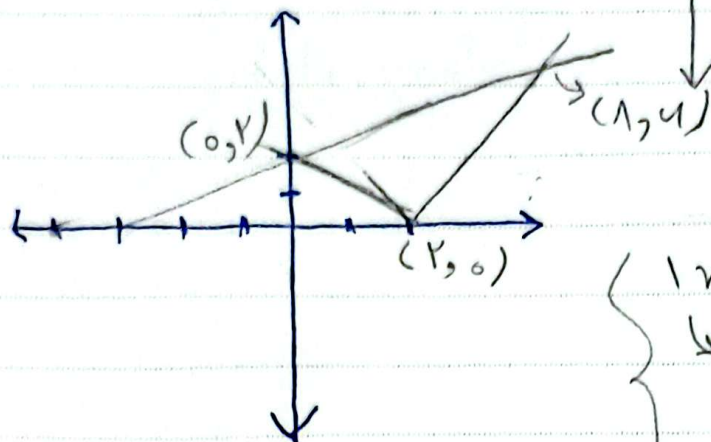
$$\begin{array}{|l|l|l|} \hline -2-n+1-n & |n+2+1-n| & n+2+n-1 \\ \hline = -2n-1 = \frac{14-n}{\mu} & = \frac{3}{\mu} = \frac{14-n}{\mu} & = 2n+1 = \frac{14-n}{\mu} \\ \hline -4n-3 = 14-n & n=1 & 4n+3 = 14-n \\ \hline \end{array}$$

$$-20 = 5n \rightarrow n = -4 \quad \text{و } 5n = 14 \Rightarrow n = 2$$

$$A(2, 5) \quad B(-4, 1)$$

$$\hookrightarrow AB \subseteq \sqrt{2+34} = 2\sqrt{10}$$

$$y = \sqrt{nx - \varepsilon n + \varepsilon} = |n - 2|$$



(9 سوال)

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

$$\begin{array}{c|c|c} n & 0 & -\varepsilon \\ \hline y & 2 & 0 \end{array}$$

$$\begin{cases} |n - 2| \leq \frac{1}{2}n + 2 \\ \downarrow \\ n - 2 = \frac{1}{2}n + 2 \\ \frac{1}{2}n = 4 \Rightarrow n = 8 \\ y = 4 \end{cases}$$

$$\begin{bmatrix} 0 & 1 & 2 \\ 2 & 4 & 0 \\ 1 & 1 & 1 \end{bmatrix} \Rightarrow (12 + 14) - (8) = 18$$

$$\frac{1}{2} \times 18 = 9$$

ن	ن
ن + 9	ن + 9
20	20

$$\frac{1}{n} + \frac{1}{n+9} = \frac{1}{20}$$

$$\frac{2n+9}{n^2+9n} = \frac{1}{20}$$

$$\rightarrow 20n + 180 = n^2 + 9n \Rightarrow n^2 - 11n - 180$$

$$(n - 18)(n + 10) = 0$$

$$\Rightarrow n = 18$$