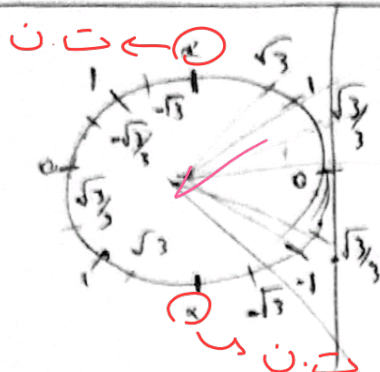


۲. آفرین خوب نوشتی

موفق باشی در تست نبودی یعنی جاها
نمی توانستیم عدد ها درست نبوده ت
معنی



۱) $\sin \pi/6 + \cos \pi + 2 \tan 3\pi/4 = 1/2 + (-1) + 2(-1) = -5/2$

ب) $-\cos 5\pi/6 + \sin 2\pi/3 - 3 \sin 4\pi/3 = -(-\sqrt{3}/2) + (\sqrt{3}/2) - 3(-\sqrt{3}/2) = 5\sqrt{3}/2$

ج) $\cos 2\pi/3 + 3 \cos 4\pi/3 - 2 \tan 5\pi/6 = -\sqrt{3}/3 + 3(\sqrt{3}/3) - 2(-\sqrt{3}/3) = 4\sqrt{3}/3$

ت) $\cos(\sin \pi) + \sin(\cos \pi/3) = \cos(0) + \sin(\pi/2) = 1 + 1 = 2$

$f(n) \begin{cases} n^2 + 4n & n \geq a \\ 2n + a + 2 & n \leq a \end{cases} \Rightarrow a^2 + 4a = 2a + a + 2$

$\Rightarrow a^2 + a - 2 = 0 \Rightarrow (a-1)^2 = 0 \Rightarrow a = 1 \Rightarrow f(n) \begin{cases} n^2 + 4n & n \geq 1 \\ 2n + 3 & n \leq 1 \end{cases}$

$\Rightarrow f(1) = 1 + 4 = 5$

$f(n) \begin{cases} 2n^2 + b & |n+1| \geq 2 \\ a + 2n & -3 \leq n \leq -1 \end{cases} \Rightarrow \begin{cases} 18-b \\ a-6 \end{cases} \Rightarrow a+b-24=0$

$\Rightarrow a+b=24$

۱) $g = \frac{1}{n^3 - 4n^2} \Rightarrow n^3 - 4n^2 = 0 \Rightarrow n^2 = 4n^2 \Rightarrow n = 4$

ب) $g = \frac{1}{2n^3 + 4n^2 + 2n + 4} \rightarrow (2n+4)(n^2+1) = (2n^2+1)(n+2) = 0$

$\Rightarrow n \neq -2 \Rightarrow P_g = \mathbb{R} - \{-2\}$

$$1) y = \sqrt{n^2-1} + \sqrt{n-2} \rightarrow n^2-1 \geq 0 \Rightarrow n^2 \geq 1 \Rightarrow n \geq 1$$

$$n-2 \geq 0 \Rightarrow n \geq 2 \quad P_f = [2, +\infty)$$

$$ب) y = \frac{\sqrt{6-3n}}{\sqrt{6n-3}} \rightarrow \begin{cases} 6-3n \geq 0 \Rightarrow 3n \leq 6 \Rightarrow n \leq 2 \\ 6n-3 > 0 \Rightarrow 6n > 3 \Rightarrow n > \frac{1}{2} \end{cases} \quad P_f = (\frac{1}{2}, 2]$$

$$y = \sqrt{6n-a} + \sqrt{b-3n} \xrightarrow{n=2} \sqrt{12-a} + \sqrt{b-6} = 0$$

$$P_f = \{2\} \quad \begin{matrix} a=12 \\ b=6 \end{matrix}$$

$$\Rightarrow \frac{b}{a} = \frac{1}{2}$$

$$الف) \sqrt{\frac{n^2-n-6}{n^4-13n^2+36}} = \sqrt{\frac{(n-3)(n+2)}{(n-3)(n+3)(n-2)(n+2)}}$$

$$\Rightarrow \begin{matrix} -3 & -2 & 2 & 3 \\ + & - & - & + \end{matrix}$$

$$P_f = (-\infty, -3) \cup (2, 3) \cup (3, +\infty)$$

$$ب) \sqrt{\frac{(n-3)(n-1)(n+2)}{(n-2)(n+1)(n+3)}}$$

$$\begin{matrix} -3 & -2 & -1 & 1 & 2 & 3 \\ + & - & + & - & + & - \end{matrix}$$

$$P_f = (-\infty, -3) \cup [-2, -1) \cup [1, 2) \cup [3, +\infty)$$

$$1) y = \sqrt{2[n]-4} \rightarrow 2[n]-4 \geq 0 \Rightarrow [n] \geq 2 \Rightarrow n \geq 2 \Rightarrow P_f = [2, +\infty)$$

$$ب) y = \sqrt{2[n]-5} \Rightarrow 2[n] \geq 5 \Rightarrow [n] \geq 2.5 \Rightarrow [n] \geq 3 \Rightarrow n \geq 3$$

$$\Rightarrow P_f = [3, +\infty)$$

$$الف) \begin{cases} n \geq -1 \\ n \neq 3 \end{cases}, \begin{cases} n \leq 6 \\ 0 < n < 1 \Rightarrow \text{no solution} \end{cases} \Rightarrow P_f = [-1, 6] - \{3\}$$

$$ب) \sqrt{[n]-4} + \sqrt{2-[n]} \Rightarrow 2-[n] \geq 0 \Rightarrow 2 \geq [n] \Rightarrow n \leq 3$$

$$[n]-4 \geq 0 \Rightarrow [n] \geq 4 \Rightarrow n \geq 4 \quad \text{①} \quad \text{②} \quad P_f = \emptyset$$