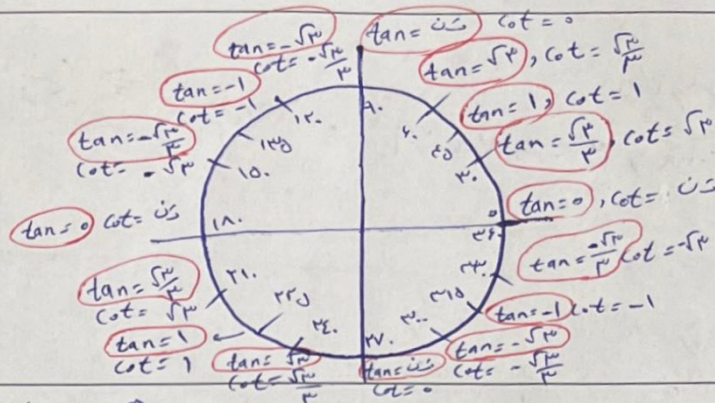




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الف) $\frac{1}{2} - 1 + 2(-1) = -\frac{5}{2}$
 ب) $\frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2} - 2 \times (-\frac{\sqrt{3}}{2}) = \frac{3\sqrt{3}}{2}$
 ج) $-\frac{\sqrt{3}}{2} + 2 \times \frac{\sqrt{3}}{2} = \frac{\sqrt{3}}{2}$
 د) $1 + 1 = 2$

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$a^2 + 2a = 2a + a + 2 \rightarrow a^2 + a - 2 = 0$
 $(a+2)(a-1) = 0 \rightarrow \begin{cases} a = -2 \times \\ a = 1 \checkmark \end{cases}$
 $f(1) = 1 + 2 = 3$

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$|n+1| \geq 2 \rightarrow \begin{cases} n+1 \geq 2 \\ n+1 \leq -2 \end{cases} \rightarrow \begin{cases} n \geq 1 \\ n \leq -3 \end{cases}$
 $f(n) = \begin{cases} 2n - b & |n+1| \geq 2 \\ a + 2n & -3 \leq n \leq -1 \end{cases}$
 $f(-3) = 12 - b = a - 6 \rightarrow a + b = 18$

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الف) $n^2(n-4) = 0$ $D_f = \mathbb{R} - \{0, 4\}$

ب) $2n^2 + 4n^2 + 2n + 4 \rightarrow n^2(2n+4) + (2n+4) \rightarrow (2n+4)(n^2+1) = 0$
 $D_f = \mathbb{R} - \{-2\}$

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$$\text{الف) } n^5 - 1 \geq 0 \rightarrow n^5 \geq 1 \rightarrow n \geq 1, n \leq -1$$

$$n - 2 \geq 0 \rightarrow n \geq 2 \xrightarrow{n} [2, +\infty)$$

$$\text{ب) } 4 - 3n \geq 0 \rightarrow 4 \geq 3n \rightarrow 2 \geq n$$

$$4n - 3 \geq 0 \rightarrow 4n \geq 3 \rightarrow 2n \geq 1 \rightarrow n \geq \frac{1}{2} \xrightarrow{n} (\frac{1}{2}, 2]$$

$$4n - a \geq 0 \rightarrow 4n \geq a \rightarrow n \geq \frac{a}{4}$$

$$b - 3n \geq 0 \rightarrow b \geq 3n \rightarrow \frac{b}{3} \geq n$$

$$\frac{a}{4} = \frac{b}{3} = 2 \rightarrow a = 8, b = 6$$

$$\frac{a}{b} = \frac{8}{6} = \frac{4}{3} \xrightarrow{\quad}$$

$$\text{الف) } y = \sqrt{\frac{n^5 - n - 6}{n^5 - 13n^2 + 12}} \rightarrow \sqrt{\frac{(n-3)(n+2)}{n^5 - 13n^2 + 12}}$$

$$t = x \rightarrow n = \pm x \rightarrow t = 9 \rightarrow n = \pm 9$$

$$t^5 - 13t^2 + 12 \rightarrow (t-3)(t-9)$$

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

$$\text{ب) } \sqrt{\frac{(n-1)(n^5 - n - 6)}{(n+1)(n^5 + n - 6)}} \rightarrow \sqrt{\frac{(n-1)(n+2)(n-3)}{(n+1)(n-2)(n+3)}}$$

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

$$\text{الف) } 2[n] - 4 \geq 0 \rightarrow 2[n] \geq 4 \rightarrow [n] \geq 2 \rightarrow n \geq 2$$

$$\text{ب) } 2[n] - 5 \geq 0 \rightarrow 2[n] \geq 5 \rightarrow [n] \geq \frac{5}{2} \rightarrow n \geq 3$$

$$\text{الف) } \sqrt{\frac{n+1}{|n-1|}} + \sqrt{\frac{4-n}{n^5 + 13n^2 + 12}} \rightarrow \sqrt{\frac{n+1}{n-1}} + \sqrt{\frac{4-n}{(n+2)^2}}$$

$$(-\infty, -1] \cup (3, +\infty) \cap (-\infty, 4] - \{-2\}$$

$$D_f = (-\infty, -1] \cup (3, 4]$$

$$\text{ب) } [n] - 4 \geq 0 \rightarrow [n] \geq 4 \rightarrow n \geq 4$$

$$2 - [n] \geq 0 \rightarrow 2 \geq [n] \rightarrow n < 3$$

$$\rightarrow \emptyset$$