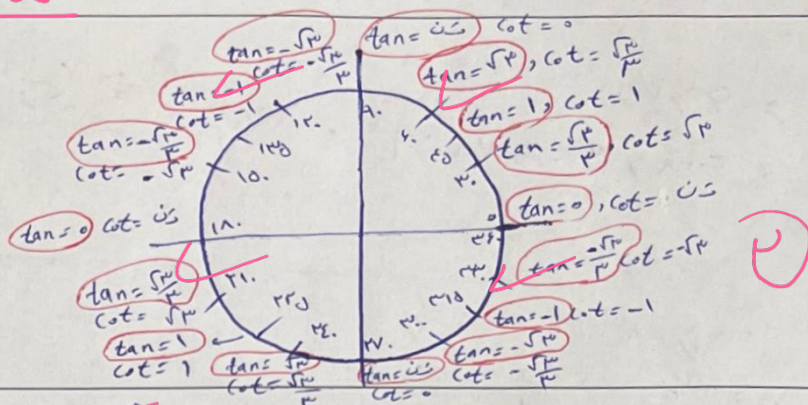




الف) $\frac{1}{2} - 1 + 2(-1) = -\frac{5}{2}$

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) $1 + 1 = 2$

$a^2 + 2a = 2a + a + 2 \rightarrow a^2 + a - 2 = 0$

$(a+2)(a-1) = 0 \rightarrow a = -2 \times$
 $a = 1 \checkmark$

$f(1) = 1 + 2 = 3$

$|n+1| \geq 2 \rightarrow \frac{n+1 \geq 2}{n \geq 1}, \frac{n+1 \leq -2}{n \leq -3}$

$f(n) \begin{cases} 2n^2 - b & |n+1| \geq 2 \\ a + 2n & -3 \leq n \leq -1 \end{cases}$

$f(-3) = 12 - b = a - 6 \rightarrow a + b = 18$

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

ب) $2n^2 + 2n^2 + 2n + 2 \rightarrow n^2(2n+2) + (2n+2) \rightarrow (2n+2)(n^2+1) = 0$
 $n = -1$

$D_f = \mathbb{R} - \{-1\}$

الف) $n^5 - 1 \geq 0 \rightarrow n \geq 1 \rightarrow n \geq 1, n \leq -1$
 $n - 2 \geq 0 \rightarrow n \geq 2 \xrightarrow{n} [2, +\infty)$

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

$4n - a \geq 0 \rightarrow 4n \geq a \rightarrow n \geq \frac{a}{4}$
 $b - 3n \geq 0 \rightarrow b \geq 3n \rightarrow \frac{b}{3} \geq n$
 $\frac{a}{4} = \frac{b}{3} = 2 \rightarrow a = 8, b = 6$

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

الف) $y = \sqrt{\frac{n^5 - n - 6}{n^5 - 13n^2 + 12}} \rightarrow \sqrt{\frac{(n-3)(n+2)}{n^5 - 13n^2 + 12}} \xrightarrow{t=n} \sqrt{\frac{(t-3)(t+2)}{t^5 - 13t^2 + 12}} \rightarrow (t-3)(t+2)$
 $D_f = (-\infty, -3) \cup (2, 3) \cup (3, +\infty)$

ب) $\sqrt{\frac{(n-1)(n^5 - n - 6)}{(n+1)(n^5 + n - 6)}} \rightarrow \sqrt{\frac{(n-1)(n+2)(n-3)}{(n+1)(n+2)(n+3)}} \xrightarrow{n} \frac{-3}{+} \frac{-2}{-} \frac{-1}{+} \frac{1}{-} \frac{2}{+} \frac{3}{-}$
 $D_f = (-\infty, -3) \cup [-2, -1) \cup (1, 3) \cup (3, +\infty)$

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

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

نیازی به تعیین علامت نبود

الف) $\sqrt{\frac{n+1}{n-3}} + \sqrt{\frac{4-n}{n^2+2n+4}} \xrightarrow{n} \sqrt{\frac{-1}{+}} + \sqrt{\frac{4-n}{n^2+2n+4}} \rightarrow (-\infty, -1] \cup (3, +\infty) \cap (-\infty, 4] - \{-2\}$
 $D_f = (-\infty, -1] \cup (3, 4]$

ب) $[n] - 4 \geq 0 \rightarrow [n] \geq 4 \rightarrow n \geq 4$
 $2 - [n] \geq 0 \rightarrow 2 \geq [n] \rightarrow n < 3$

(١٠-الف) $y = \sqrt{\frac{n+1}{|n-4|}} + \sqrt{\frac{4-n}{n^2+2n+2}}$

$\begin{cases} \frac{n+1}{|n-4|} \geq 0 \rightarrow n \geq -1, n \neq 4 \quad I \\ \frac{4-n}{n^2+2n+2} \geq 0 \rightarrow n \leq 4 \quad II \end{cases}$

$\Delta < 0$ د معادله مثبت و بدون معررديت
 $\Delta < 0$ د معادله مثبت و بدون معررديت

$I \cap II \rightarrow D_f = [-1, 4) \cup (4, 4] \subseteq [-1, 4] - \{4\}$