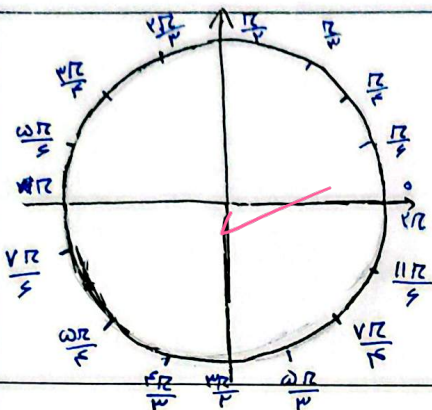




- ۱) $\tan \frac{\pi}{6} = \frac{\sqrt{3}}{3}$ ۸) $\tan \pi = 0$ ۱۳) $\tan \pi = \tan 0 = 0$
 ۲) $\tan \frac{\pi}{4} = 1$ ۹) $\tan \frac{5\pi}{6} = -\frac{\sqrt{3}}{3}$
 ۳) $\tan \frac{\pi}{3} = \sqrt{3}$ ۱۰) $\tan \frac{2\pi}{3} = -\sqrt{3}$
 ۴) $\tan \frac{2\pi}{3} = -\sqrt{3}$ ۱۱) $\tan \frac{4\pi}{3} = \sqrt{3}$
 ۵) $\tan \frac{5\pi}{6} = -\frac{\sqrt{3}}{3}$ ۱۲) $\tan \frac{3\pi}{4} = -1$
 ۶) $\tan \frac{3\pi}{4} = -1$ ۱۳) $\tan \frac{5\pi}{6} = -\frac{\sqrt{3}}{3}$
 ۷) $\tan \frac{4\pi}{3} = \sqrt{3}$ ۱۴) $\tan \frac{7\pi}{6} = \frac{\sqrt{3}}{3}$
 ۸) $\tan \frac{5\pi}{6} = -\frac{\sqrt{3}}{3}$ ۱۵) $\tan \frac{11\pi}{6} = -\frac{\sqrt{3}}{3}$

الف) $\sin \frac{\pi}{6} + \cos \pi + 2 \tan \frac{5\pi}{6} \rightarrow \frac{1}{2} + (-1) + 2 \times (-\frac{\sqrt{3}}{3}) = -\frac{2}{3} - \frac{2\sqrt{3}}{3}$
 ب) $-\cos \frac{5\pi}{6} + \sin \frac{2\pi}{3} - 3 \sin \frac{4\pi}{3} \rightarrow -(-\frac{\sqrt{3}}{2}) + \frac{\sqrt{3}}{2} - 3(-\frac{\sqrt{3}}{2}) = \frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{2} + \frac{3\sqrt{3}}{2} = 2\sqrt{3}$
 ج) $\cot \frac{2\pi}{3} + 3 \cot \frac{4\pi}{3} - 2 \tan \frac{5\pi}{6} \rightarrow -\frac{\sqrt{3}}{3} + 3 \times \frac{\sqrt{3}}{3} - 2 \times (-\frac{\sqrt{3}}{3}) = -\frac{\sqrt{3}}{3} + \sqrt{3} + \frac{2\sqrt{3}}{3} = 2\sqrt{3}$
 د) $\cos(\sin \pi) + \sin(\pi \cos \frac{\pi}{3}) \rightarrow \cos(0) + \sin(\pi \times \frac{1}{2}) = 1 + \sin \frac{\pi}{2} = 1 + 1 = 2$

$a^2 + 4a = 2a + a + 2$
 $a^2 + a - 2 = 0$
 $(a+2)(a-1) = 0$
 $a = -2$ یا $a = 1$
 $a = 1$

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

$-3 < x < -1$, $|x+1| \geq 2$
 $x \geq 1$ یا $x \leq -3$
 $x \leq -3$ یا $x \geq 1$

$2(-3)^2 - b = a + 2(-3)$
 $18 - b = a - 6$
 $24 = a + b$

الف) $y = \frac{1}{x^2(x-4)}$ $D = R - \{4, 0\}$

ب) $y = \frac{1}{2x^3 + 4x^2 + 2x + 4} \rightarrow 2x(x^2 + 1) + 4(x^2 + 1) \rightarrow (x^2 + 1)(2x + 4)$
 $D = R - \{-2\}$

الف) $\sqrt{x^2-1} + \sqrt{x-2} \rightarrow x \geq 2$ $\rightarrow [2, +\infty)$

شماره 1
 $\begin{array}{c|c|c|c|} \hline - & 1 & & \\ \hline + & - & + & \\ \hline \end{array}$ $\begin{array}{l} x \geq 1 \\ x \leq -1 \end{array}$

ب) $\sqrt{4-2x} \rightarrow x \leq 2$ $\rightarrow [1/2, 2)$

$\sqrt{4x-2} \rightarrow x \geq 1/2$

$y = \sqrt{4x-a} + \sqrt{b-2x}$
 $x \geq \frac{a}{4}$ $x \leq \frac{b}{2}$ $\rightarrow$ اشتراک این دو فضاها
 نقطه شده که به فضای
 حاصل می‌گردد $\frac{a}{4}$ و $\frac{b}{2}$

$\frac{a}{4} = \frac{b}{2} \rightarrow \frac{b}{a} = \frac{1}{2}$

$y = \sqrt{\frac{x^2-x-6}{x^2-13x+42}} \Rightarrow \sqrt{\frac{(x-3)(x+2)}{(x-6)(x-7)}} \rightarrow A$

$\star E = x^2$ $\begin{array}{c|c|c|c|} \hline - & 2 & - & 3 \\ \hline + & - & + & \\ \hline \end{array}$ $\begin{array}{c|c|c|c|} \hline - & 6 & - & 7 \\ \hline + & - & + & \\ \hline \end{array}$

	$x-3$	$x+2$	$x-6$	$x-7$
A	+	+	-	-
B	+	-	+	-
A/B	+	-	-	+

$D = (-\infty, -3) \cup (2, +\infty) - \{2\}$

$y = \sqrt{\frac{x^3-2x^2-2x+6}{x^3+2x^2-2x-6}}$

$\begin{array}{c|c|c|c|} \hline - & 2 & - & 2 \\ \hline - & 2 & - & 2 \\ \hline + & 2 & - & 2 \\ \hline \end{array}$ $\begin{array}{c|c|c|c|} \hline - & 2 & - & 2 \\ \hline - & 2 & - & 2 \\ \hline + & 2 & - & 2 \\ \hline \end{array}$

$\begin{array}{c|c|c|c|} \hline - & 2 & - & 2 \\ \hline - & 2 & - & 2 \\ \hline + & 2 & - & 2 \\ \hline \end{array}$ $\begin{array}{c|c|c|c|} \hline - & 2 & - & 2 \\ \hline - & 2 & - & 2 \\ \hline + & 2 & - & 2 \\ \hline \end{array}$

$D = (-\infty, -2) \cup (-2, -1) \cup (1, 2) \cup (2, +\infty)$

الف) $y = \sqrt{2[x]-4}$ $[x] \geq 2$ $\rightarrow [2, +\infty)$

$x \geq 2$

ب) $y = \sqrt{2[x]-6}$

$[x] \geq 3 \rightarrow [x] \geq 3$ $\rightarrow [3, +\infty)$

$3 \leq x$

الف) $y = \sqrt{\frac{x+1}{|x-3|}} + \sqrt{\frac{4-x}{x^2+2x+6}}$ $\rightarrow x < 4$

$x \neq 3$ $x \geq -1$ $x \neq -2$

$D = [-1, 4] - \{3\}$

ب) $y = \sqrt{[x]-4} + \sqrt{4-[x]}$

$[x] \geq 4$ $[x] \leq 4$ $\rightarrow x \leq 4$

$x < 3$ $x \geq 4$ $\rightarrow \emptyset$

الف-٨) $y = \sqrt{\frac{n^2 - n - 4}{n^4 - 13n^2 + 36}} \leadsto \frac{n^2 - n - 4}{n^4 - 13n^2 + 36} \geq 0 \leadsto \frac{(n-3)(n+2)}{(n^2-9)(n^2-4)} \geq 0$

$$\frac{(n-3)(n+2)}{(n-3)(n+3)(n-2)(n+2)} \geq 0 \leadsto \begin{array}{ccccccc} & -3 & & -2 & & 2 & & 3 \\ & * & & * & & & & * \\ + & \cancel{0} & - & \cancel{0} & - & \cancel{0} & + & \cancel{0} & + \end{array}$$

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

الف-١٠) $y = \sqrt{\frac{n+1}{|n-4|}} + \sqrt{\frac{4-n}{n^2+2n+2}}$ نحتاج مقدرين مفروق!

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

لـ $\Delta < 0$ ، محاوره مثبت و بدون مقدرين

$$\xrightarrow{I \cap II} D_f = [-1, 3) \cup (3, 4] \subseteq [-1, 4] - \{4\}$$