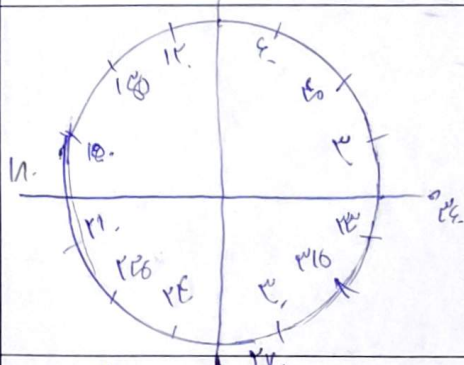




$\tan 0, \tan 180 = 0$
 $\tan 90, \tan 270 = \infty$
 $\sin 0, \sin 180 = 0$
 $\sin 90, \sin 270 = 1$
 $\cos 0, \cos 180 = 1$
 $\cos 90, \cos 270 = 0$
 $\tan 45, \tan 135 = 1$
 $\tan 225, \tan 315 = -1$
 $\sin 45, \sin 135 = \frac{\sqrt{2}}{2}$
 $\sin 225, \sin 315 = -\frac{\sqrt{2}}{2}$
 $\cos 45, \cos 135 = \frac{\sqrt{2}}{2}$
 $\cos 225, \cos 315 = -\frac{\sqrt{2}}{2}$

$\sin\left(\frac{\pi}{4}\right) + \cos\left(\frac{\pi}{4}\right) + \tan\left(\frac{\pi}{4}\right) \Rightarrow \sin + \cos + \tan \Rightarrow$

$-\cos\left(\frac{5\pi}{4}\right) + \sin\left(\frac{5\pi}{4}\right) - \tan\left(\frac{5\pi}{4}\right) \Rightarrow -\cos + \sin - \tan \Rightarrow$

$\cot\left(\frac{3\pi}{4}\right) + \tan\left(\frac{3\pi}{4}\right) - \cot\left(\frac{7\pi}{4}\right) \Rightarrow \cot + \tan - \cot \Rightarrow$

$\cos(\sin x) + \sin(\cos x) \Rightarrow$

$x = a \rightarrow a^2 + a = 1 \quad a^2 + a - 1 = 0 \quad \Delta = 1 + 4 = 5$
 $a = \frac{-1 \pm \sqrt{5}}{2}$
 $(a+1)(a-1) < 0 \Rightarrow a = 1 \checkmark$

$y = \frac{1}{a^2 - 1} \rightarrow a^2 - 1 \neq 0 \quad a^2 - 1 = 0 \rightarrow a = \pm 1$
 $a \neq \pm 1 \Rightarrow D = R - \{1, -1\}$

$y = \frac{1}{a^2 + a + 1} \rightarrow a^2 + a + 1 \neq 0 \quad \Delta = 1 - 4 = -3 < 0$
 $a^2 + a + 1 = 0$ has no real roots.
 $D = R$

$y = \sqrt{a-1} + \sqrt{a-2} \rightarrow a-1 \geq 0 \quad a-2 \geq 0$
 $a \geq 1 \quad a \geq 2 \Rightarrow a \geq 2$
 $D = [2, \infty)$

$y = \frac{\sqrt{4-x}}{\sqrt{x-2}} \rightarrow 4-x \geq 0 \quad x-2 \geq 0$
 $x \leq 4 \quad x \geq 2 \Rightarrow 2 \leq x \leq 4$
 $D = [2, 4]$

$$\begin{aligned} |a+1| &= 2 \\ |a| &= 2 \\ \underline{a=1} \end{aligned}$$

$$\begin{aligned} |a+1| &= 2 \\ |a| &= 2 \\ \underline{a=-3} \end{aligned}$$

$$\begin{aligned} f(a) &= a-5 \\ \sqrt{a^2+b^2} &= a+5 \\ \sqrt{(-3)^2+b^2} &= a+5 \\ |a+b| &= a-9 \end{aligned}$$

$$\begin{aligned} a+b &= 11+9 \\ \underline{a+b=20} \end{aligned}$$

$$\begin{aligned} y_2 \sqrt{a-9} + \sqrt{b-9} & \xrightarrow{a=5} \sqrt{1^2-9} + \sqrt{b-9} = 0 \quad \sqrt{1^2-9} = 0 \quad a=1^2 \\ \sqrt{b-9} &= 9 \quad b=8 \\ \frac{b}{a} &= \frac{8}{1^2} = \frac{1}{1} \end{aligned}$$

$$\begin{aligned} y_2 \sqrt{\frac{a^2-a-6}{a^2-12a+36}} & \rightarrow \frac{a^2-12a+36}{(a-6)^2} > 0 \quad \left. \begin{array}{l} a > 6 \\ a < 6 \end{array} \right\} \rightarrow \boxed{a > 6} \\ \frac{a^2-a-6}{a^2-12a+36} & \geq 0 \quad a \geq 6 \\ (a-6)(a+1) & \geq 0 \rightarrow a \geq -1 \\ \frac{a^2-12a+36}{a^2-12a+36} & \geq 0 \rightarrow (a-6)(a+1) > 0 \\ \frac{a^2-12a+36}{a^2-12a+36} & \geq 0 \rightarrow (a-6)(a+1) > 0 \\ \frac{a^2-12a+36}{a^2-12a+36} & \geq 0 \rightarrow (a-6)(a+1) > 0 \end{aligned}$$

$$y_2 \sqrt{2[a]-5} \rightarrow 2[a]-5 \geq 0 \rightarrow 2[a] \geq 5 \rightarrow [a] \geq \frac{5}{2} \rightarrow [2, +\infty)$$

$$\begin{aligned} y_2 \sqrt{2[a]-0} & \rightarrow 2[a]-0 \geq 0 \rightarrow 2[a] \geq 0 \rightarrow [a] \geq \frac{0}{2} = 0 \rightarrow \\ & [0, +\infty) \end{aligned}$$

$$\begin{aligned} y_2 \sqrt{\frac{a+1}{|a-3|}} + \sqrt{\frac{4-a}{a^2+a+4}} & \rightarrow \frac{a+1}{a^2+a+4} \neq 0 \quad \frac{4-a}{a^2+a+4} \neq 0 \\ \frac{a+1}{a^2+a+4} & \geq 0 \quad \frac{4-a}{a^2+a+4} \geq 0 \\ \frac{a+1}{a^2+a+4} & \geq 0 \quad \frac{4-a}{a^2+a+4} \geq 0 \end{aligned}$$

$$\begin{aligned} y_2 \sqrt{[a]-1} + \sqrt{2-[a]} & \rightarrow [a]-1 \geq 0 \rightarrow [a] \geq 1 \\ [a] \geq 1 & \rightarrow [1, +\infty) \end{aligned}$$