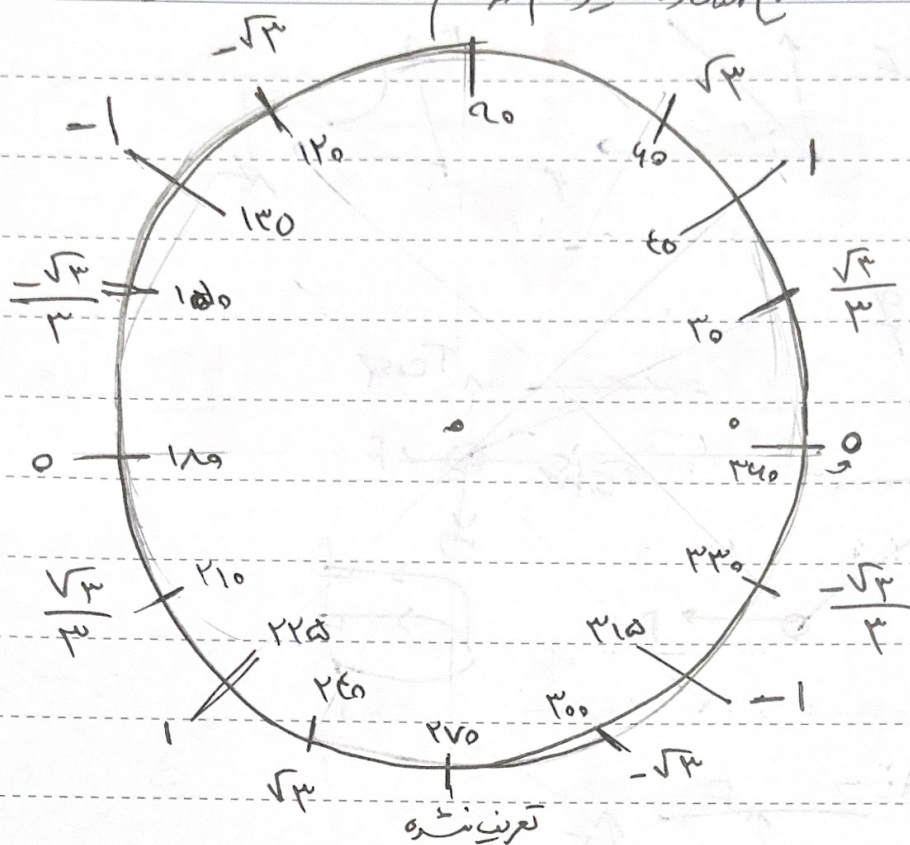




$$\sin 10^\circ + \cos 10^\circ + r \tan 10^\circ$$

$$\text{جواب اولی: } \sin \frac{\pi}{4} + \cos \frac{\pi}{4} + r \tan \frac{\pi}{4} =$$

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

$$-\cos 10^\circ + \sin 10^\circ - \sin 10^\circ$$

$$\text{جواب دومی: } -\cos \frac{\pi}{4} + \sin \frac{\pi}{4} - r \sin \frac{\pi}{4} =$$

$$-(-\frac{\sqrt{2}}{r}) + \frac{\sqrt{2}}{r} - r(-\frac{\sqrt{2}}{r}) = \frac{2\sqrt{2}}{r}$$

$$G \in 10^\circ + G \in 10^\circ - r \tan 10^\circ$$

$$\text{جواب سومی: } G \in \frac{\pi}{4} + r G \in \frac{\pi}{4} - r \tan \frac{\pi}{4} =$$

$$-\frac{\sqrt{2}}{r} + r(-\frac{\sqrt{2}}{r}) - r(-\frac{\sqrt{2}}{r}) = \frac{r\sqrt{2}}{r}$$

$$\frac{r\sqrt{2}}{r} + \frac{r\sqrt{2}}{r}$$

$$\text{جواب چهارمی: } \cos(\sin \frac{\pi}{4}) + \sin(\pi \cos \frac{\pi}{4})$$

$$\cos(0) + \sin \frac{\pi}{2} = 1 + 1 = 2$$

$$\sin 10^\circ + \cos 10^\circ + r \tan 10^\circ$$

$$\sin 10^\circ + \cos 10^\circ + r \tan 10^\circ$$

$$f(n) = \begin{cases} r^n + c & n \geq a \\ r^{n+a} & n < a \end{cases} \Rightarrow n \geq a \Rightarrow a + r = r^n + r$$

$$r^{n+a} = r^n + c$$

$$r^n + a - r = 0 \Rightarrow a = r - r^n$$

$$f(n) = (1/r + c) = r^n + c \quad (a-1)(a+r) = 0 \Rightarrow a = -r$$

$$n \geq 1$$

$$f(n) = \begin{cases} r^n - b & |n+1| \geq r \Rightarrow \begin{cases} n \geq 1 \\ n \leq -r \end{cases} \\ a + r^n & -r < n < 1 \end{cases}$$

$$n = -r \Rightarrow r^n - b = a - r \Rightarrow a + b = r^n$$

الف) $y = \frac{1}{x^3 - 5x^2}$

$$x^3 - 5x^2 \neq 0$$

$$x^2(x-5) \neq 0 \Rightarrow x \neq 0, 5$$

$$D_f = \mathbb{R} - \{0, 5\}$$

ب) $y = \frac{1}{2x^2 + 5x^2 + 2x + 4} = \frac{1}{(2x+1)(x^2+1)}$

$$2x+1 \neq 0 \quad x^2+1 \neq 0 \Rightarrow x \neq -\frac{1}{2} \Rightarrow D_f = \mathbb{R} - \{-\frac{1}{2}\}$$

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

$$\begin{aligned} & \begin{matrix} (x-1)(x+1) \\ -1 \\ +1-1 \end{matrix} \quad \text{III } x \geq 2 \\ & \text{I } x \geq 1 \\ & \text{II } x^2-1 \end{aligned}$$

$$\text{I} \cap \text{II} \cap \text{III} = [2, +\infty)$$

ب) $y = \frac{\sqrt{4-3x}}{\sqrt{4x-3}} \rightarrow D_f = (\frac{4}{3}, 2]$

$$4-3x \geq 0 \quad x \leq \frac{4}{3} \quad \text{I}$$

$$4x-3 \geq 0 \quad x \geq \frac{3}{4} \quad \text{II}$$

$$\text{I} \cap \text{II} =$$

$$\frac{3}{4} \leq x \leq \frac{4}{3}$$

محدوده دامنه معنوی دار

$$y = \sqrt{4x-a} + \sqrt{b-3x}$$

$$4x-a \geq 0$$

$$x \geq \frac{a}{4} \quad \text{I}$$

$$b-3x \geq 0$$

$$x \leq \frac{b}{3} \quad \text{II}$$

$$\text{I} \cap \text{II} = [\frac{a}{4}, \frac{b}{3}] = [\frac{1}{4}, \frac{1}{3}]$$

$$\frac{a}{4} = \frac{b}{3} = \frac{1}{4} \Rightarrow a \geq 1, b \geq 4$$

$$\frac{b}{a} \geq \frac{4}{1} = 4$$

$$\sqrt{c(x-r)} + \sqrt{d(x-n)} \quad \begin{matrix} c=4 & d=3 \\ a=1 & b=4 \end{matrix}$$

$$\frac{b}{a} \geq \frac{4}{1} = 4$$

الف) $y = \sqrt{x^2 - x - 4} \rightarrow (x-3)(x+2)$
 $\rightarrow x \geq 3, x \leq -2$

$x^2 - 13x + 34$
 $t^2 - 13t + 34 \rightarrow x^2 = 9$
 $(t-9)(t-4) \rightarrow x = \pm 3$

$x^2 \geq 0 \rightarrow x \geq -2$

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

$-3 \quad -2 \quad 2 \quad 3$
 $+ \quad - \quad - \quad +$

جمع ضرب = 0 $\rightarrow$ (x+1) جیسے ضرب

ب) $y = \sqrt{x^3 - 2x^2 - 5x + 4} \rightarrow \frac{(x-1)(x+2)(x-3)}{(x+1)(x-2)(x+3)}$
 $x^3 - 2x^2 - 5x + 4 \rightarrow$
 $x^3 - 2x^2 - 5x + 4$

$x^3 - 2x^2 - 5x + 4 \mid x+1$
 $x^3 - x^2 - 4x + 4$
 $+ x^2 - 4x + 4$
 $+ x^2 - 4x + 4$

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

الف) $y = \sqrt{2[x] - 4} \rightarrow D_f = [2, +\infty)$
 $2[x] - 4 \geq 0 \rightarrow [x] \geq 2 \Rightarrow x \geq 2$

ب) $y = \sqrt{2[x] - 5} \rightarrow D_f = [3, +\infty)$
 $2[x] - 5 \geq 0 \Rightarrow [x] \geq 3, 5 \Rightarrow x \geq 3$

$$y = \sqrt{\frac{(n+1)}{|n-3|}} + \sqrt{\frac{4-n}{n^2+2n+4}}$$

(1.)

$$I \Rightarrow \frac{-1}{-1} + \frac{3}{3} \Rightarrow$$

$$[-1, \infty) - \{3\}$$

Df

$$I \cap II = [-1, 4] - \{3\}$$

$$= [-1, 3) \cup (3, 4]$$

$$II \Rightarrow \frac{4}{+1} \Rightarrow (-\infty, 4]$$

$$y = \sqrt{\frac{[n]-6}{I}} + \sqrt{\frac{2-[n]}{II}}$$

$$[n] > 6$$

$$I \Rightarrow n > 6$$

$$I \cap II = Df = \emptyset$$

$$II \Rightarrow [n] < 2 \Rightarrow n < 2$$

