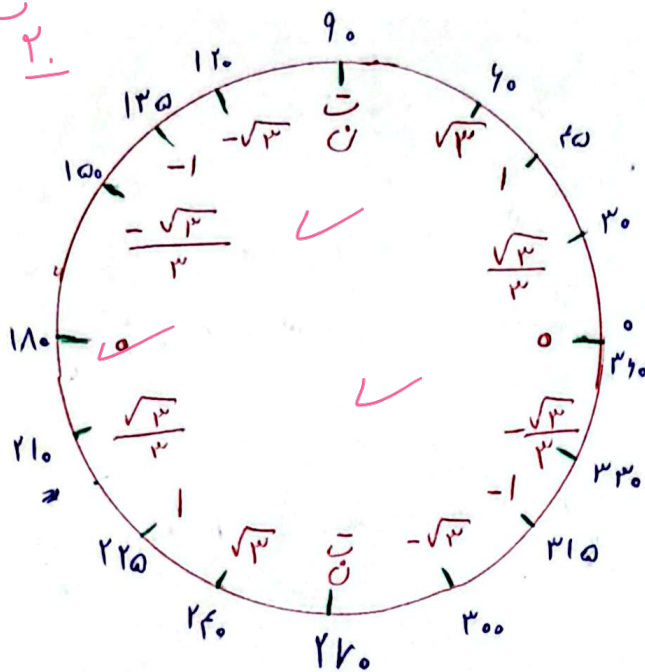




-1

الف) $\frac{1}{y} \neq -1 + (2x - 1) = -\frac{a}{y}$

-2

ب) $\frac{\sqrt{3}}{y} + \frac{\sqrt{3}}{y} - 3 - \frac{\sqrt{3}}{y} = \frac{a\sqrt{3}}{y}$

ج) $-\frac{\sqrt{3}}{y} + 3 \times \frac{\sqrt{3}}{y} - 2 \times -\frac{\sqrt{3}}{y} = \frac{4\sqrt{3}}{y}$

د) $1 + 1 = 2$

if $n=a$ $n^2 + fn = 2n + a + 2 \Rightarrow a^2 + fa = 2a + a + 2 \Rightarrow a^2 + a - 2 = 0 \Rightarrow (a+2)(a-1) = 0$

-3

$a < \begin{cases} -2 \Rightarrow f - 1 = -2 + 2 \\ 1 \Rightarrow 1 + f = 2 + 2 \end{cases} \Rightarrow f(1) = n^2 + fn = 1 + 1 = 2$

-4

if $n=-2$ $|n+1| \geq 2 \Rightarrow -n \geq 2 \Rightarrow n \leq -2 \Rightarrow 1 - b = a \Rightarrow 2f = a + b$

الف) $y = \frac{1}{n^2 - fn^2} \Rightarrow n^2 - fn^2 \neq 0 \Rightarrow n^2(n-f) \neq 0 \Rightarrow D_f = \mathbb{R} - \{f\} - \{0\}$

ب) $y = \frac{1}{2n^3 + 2n^2 + 2n + f}$
 $2n^3 + 2n^2 + 2n + f \neq 0$
 $(n+1)(2n^2 - fn + 1) + (n+2)(2n-3) \neq 0$
 $\Rightarrow (n+1)(2n^2 - fn + 2n + 1 - 3)$
 $D_f = \mathbb{R} - \{f\}$
 $\mathbb{R} - \{-2\}$

$$a) y = \sqrt{x^2-1} + \sqrt{x-2} \quad \left. \begin{array}{l} x^2 \geq 1 \\ x \geq 2 \end{array} \right\} \Rightarrow x \geq 2 \Rightarrow Df = [2, +\infty)$$

$$b) y = \frac{\sqrt{4-2x}}{\sqrt{x-2}} \quad \left. \begin{array}{l} 4-2x \geq 0 \Rightarrow 4 \geq 2x \Rightarrow 2 \geq x \\ x-2 > 0 \Rightarrow x > 2 \end{array} \right\} \Rightarrow Df = \left(\frac{1}{2}, 2\right]$$

$$Df = \{2\} \Rightarrow 12-a=0, b-4=0 \Rightarrow a=12, b=4 \Rightarrow \frac{b}{a} = \frac{1}{3}$$

$$a) y = \sqrt{\frac{x^2-4x-5}{x^2-12x^2+35}} \xrightarrow{x^2=t} t^2-12t+35 \neq 0 \quad (t-5)(t-7)=0$$

$$\Rightarrow x^2-4x-5=0 \Rightarrow (x-5)(x+1)=0 \Rightarrow x < -1 \quad X$$

$$\begin{array}{ccccccc} -3 & -1 & 1 & 3 \\ + & - & + & - & + \end{array} \quad Df = (-\infty, -3) \cup (1, 3) \cup (5, +\infty)$$

$$b) y = \sqrt{\frac{x^3-2x^2-5x+6}{x^3+2x^2-5x-6}} = \sqrt{\frac{(x-1)(x-3)(x+2)}{(x+1)(x+3)(x-2)}}$$

$$\begin{array}{ccccccc} -3 & -1 & 1 & 3 \\ + & - & + & - & + \end{array} \quad Df = (-\infty, -3) \cup (-1, 1) \cup (3, +\infty)$$

$$a) y = \sqrt{2[x]-4} \Rightarrow 2[x] \geq 4 \Rightarrow [x] \geq 2 \Rightarrow x \geq 2$$

$$b) y = \sqrt{2[x]-5} \quad 2[x] \geq 5 \Rightarrow [x] \geq 2.5 \Rightarrow x \geq 3$$

$$a) y = \sqrt{\frac{x+1}{|x-3|}} + \sqrt{\frac{4-x}{x^2+2x+4}} \quad \begin{array}{l} x \geq -1 \\ x \geq -1 \end{array} \quad Df = [-1, 4] - \{3\}$$

$$b) y = \sqrt{[x]-4} + \sqrt{4-[x]} \quad [x] \geq 4 \Rightarrow x \geq 4 \quad 4 \geq [x] \Rightarrow x < 5 \Rightarrow Df = \emptyset$$