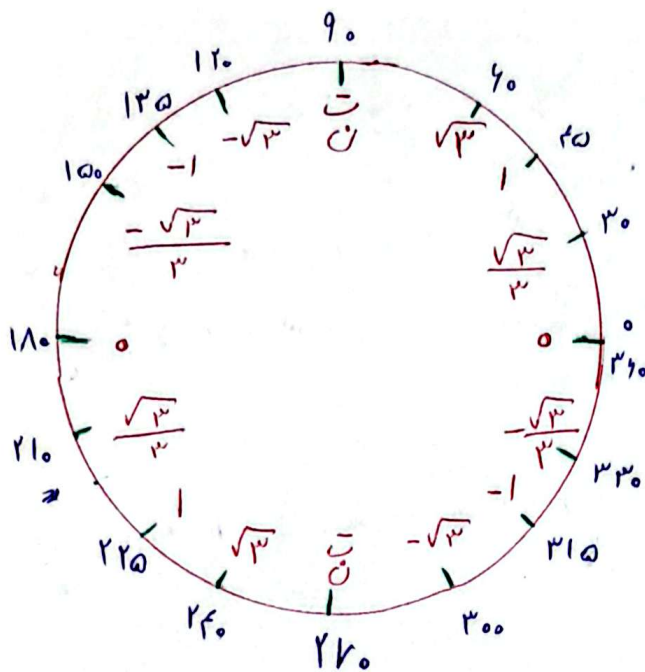




-1

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

-2

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

ج) $-\frac{\sqrt{3}}{r} + 3 \times \frac{\sqrt{3}}{r} - 2 \times \frac{\sqrt{3}}{r} = \frac{a\sqrt{3}}{r}$

د) $1 + 1 = 2$

-3

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

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

-4

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

-5

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) $y = \frac{1}{2n^3 + 2n^2 + 2n + f}$

$$\frac{2n^3 + 2n^2 + 2n + f + 12 - 12}{(n+2)(2n^2 - fn + 1) + (n+2)(2n-2)} \neq 0$$

$$\Rightarrow (n+2)(2n^2 - fn + 2n + 1 - 2)$$

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

 همواره +

الف) $y = \sqrt{\frac{x^2-1}{x^2}} + \sqrt{x-2}$
 $\left. \begin{matrix} x^2 \geq 1 \\ x \geq 1 \text{ or } x \leq -1 \end{matrix} \right\} \Rightarrow x \geq 2 \Rightarrow Df = [2, +\infty)$

ب) $y = \frac{\sqrt{4-2x}}{\sqrt{x-2}}$
 $\left. \begin{matrix} 4-2x \geq 0 \Rightarrow 2 \geq x \Rightarrow x \leq 2 \\ x-2 > 0 \Rightarrow x > 2 \end{matrix} \right\} Df = (\frac{1}{2}, 2]$

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

الف) $y = \sqrt{\frac{x^2-4x-5}{x^2-12x^2+35}} \xrightarrow{x^2=t} t^2-12t+35 \neq 0 \quad (t-5)(t-7)=0$
 $\Rightarrow x^2-4x-5=0 \Rightarrow (x-5)(x+1)=0 \Rightarrow x < -2 \text{ or } x > 5$
 $Df = (-\infty, -2) \cup (5, +\infty)$
 ب) $y = \sqrt{\frac{x^3-2x^2-5x+6}{x^3+2x^2-5x-6}} = \sqrt{\frac{(x-1)(x-3)(x+2)}{(x+1)(x+3)(x-2)}}$
 $Df = (-\infty, -3) \cup (-1, 1) \cup (2, +\infty)$

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

ب) $y = \sqrt{2[x]-6} \quad 2[x] \geq 6 \Rightarrow [x] \geq 3 \Rightarrow x \geq 3$

الف) $y = \sqrt{\frac{x+1}{|x-3|}} + \sqrt{\frac{4-x}{x^2+2x+4}}$
 $\left. \begin{matrix} x+1 \geq 0 \\ |x-3| > 0 \end{matrix} \right\} \Rightarrow x \geq -1 \text{ و } x \neq 3$
 $Df = [-1, 3) \cup (3, +\infty)$

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