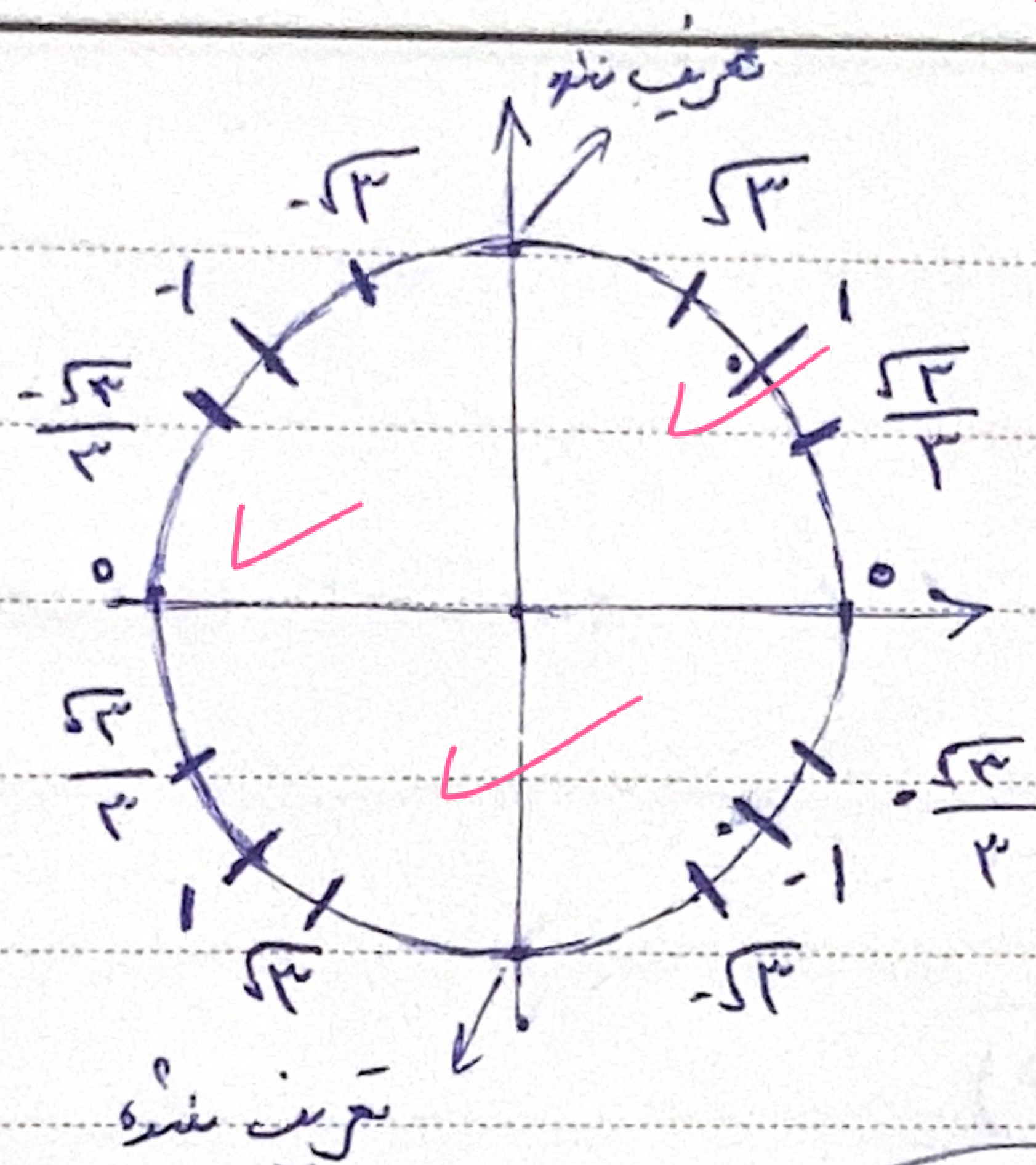




۱- نمایش زوایای روی دایره مشخص شده.

الف) $A = \frac{1}{2} - 1 + 2(-1) = -\frac{8}{2}$

ب) $B = (-\frac{\sqrt{3}}{2}) + \frac{\sqrt{3}}{2} - 2(-\frac{\sqrt{3}}{2}) = \frac{8\sqrt{3}}{2}$

ج) $C = \frac{\sqrt{3}}{2} + \frac{\sqrt{3}}{3} - 2(-\frac{\sqrt{3}}{2}) = \frac{8\sqrt{3}}{3}$

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

$x = a \Rightarrow a^2 + 4a = 3a + 2 \Rightarrow a^2 + a - 2 = 0 \Rightarrow a = 1, -2$

$f(x) = 1 + (4 \times 1) = 5$
چون $a > 0$ است $\leftarrow a = 1$

$f(x) = \begin{cases} 2x^2 + b & x \leq -3, x \geq 1 \\ 2x + a & -3 \leq x \leq -1 \end{cases}$

$x = -3 \Rightarrow 18 - b = -9 + a \Rightarrow a + b = 27$

الف) $x^3 - 4x^2 = x^2(x - 4) \neq 0 \Rightarrow x \neq 4, 0 \Rightarrow D_f \subset \mathbb{R} - \{0, 4\}$

ب) $2x^3 + 4x^2 + 2x + 4 = (x^2 + 1)(2x + 4) \neq 0 \Rightarrow x \neq -2 \Rightarrow D_f \subset \mathbb{R} - \{-2\}$
مجموعه صفر

الف) $x^2 - 1 \geq 0 \Rightarrow x^2 \geq 1 \Rightarrow x \geq 1 \vee x \leq -1, x - 2 \geq 0 \Rightarrow x \geq 2$

$(x \geq 1) \wedge (x \leq -1) \wedge (x \geq 2) \Rightarrow D_f = [2, +\infty)$

ب) $9 - 3x \geq 0 \Rightarrow x \leq 3, 4x - 3 \geq 0 \Rightarrow x \geq \frac{3}{4} \Rightarrow \frac{3}{4} \leq x \leq 3$

$\Rightarrow D_f = [\frac{3}{4}, 3]$

$$x \leq b \wedge x \geq a \Rightarrow x \leq \frac{b}{c} \wedge x \geq \frac{a}{c}$$

-v

$$\frac{b}{c} \geq \frac{a}{c} \Rightarrow \frac{b}{a} \geq \frac{1}{c}$$

چون کسر مثبت است

$$\text{الف)} \quad y = \sqrt{\frac{(x-1)(x+1)}{(x^2)^2 - 12x^2 + 4}} = \sqrt{\frac{(x-1)(x+1)}{(x^2-4)(x^2-4)}}$$

-A

$$\begin{array}{ccccccc} x & -1 & & 1 & & x \\ + & - & - & + & + & + & + \end{array} \Rightarrow D_f = (-\infty, -1) \cup (1, x) \cup (x, +\infty)$$

$$\text{ب)} \quad y = \sqrt{\frac{(x-1)(x^2-x-4)}{(x+1)(x^2+x-4)}} = \sqrt{\frac{(x-1)(x-1)(x+1)}{(x+1)(x+1)(x-1)}}$$

$$\begin{array}{ccccccc} x & -1 & -1 & & 1 & & x \\ + & - & + & - & + & - & + \end{array} \Rightarrow D_f = (-\infty, -1) \cup [-1, -1) \cup [1, 1) \cup [x, +\infty)$$

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

-9

$$\text{ب)} \quad x[x] - 8 \geq 0 \Rightarrow [x] \geq 2, 0 \Rightarrow x \geq 2 \Rightarrow D_f = [2, +\infty)$$

$$\text{الف)} \quad y = \sqrt{\frac{x+1}{|x-1|}} + \sqrt{\frac{4-x}{x^2+12x+4}} \Rightarrow x \geq -1 - \{1\} \Rightarrow x \leq 4$$

$$\begin{array}{ccc} & x & \\ -1 & + & 4 \end{array}$$

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$$\Delta = (4)^2 - 4(4 \times 1) = -12 \Rightarrow \text{مميز مثبت و لا منفی}$$

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

$$\text{ب)} \quad y = \sqrt{[x]-4} + \sqrt{4-[x]} \Rightarrow [x] \geq 4 \Rightarrow x \geq 4$$

$$4 - [x] \geq 0 \Rightarrow 4 \geq [x] \Rightarrow x \leq 4 \quad (-\infty, 4) \cap [4, +\infty) = \emptyset$$

$$D_f = \emptyset$$