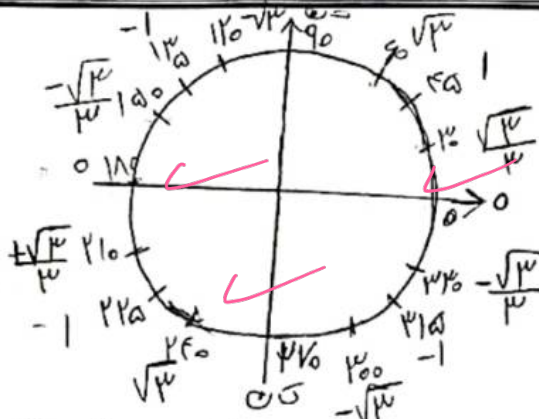


۲. آفرین عالی دوستی



(1)

الف) $\frac{1}{p} + (-1) + 2(-1) = \frac{1}{p} - \frac{p}{p} - \frac{p}{p} = -\frac{5}{p}$

(۲)

ب) $-(\frac{\sqrt{p}}{p}) + \frac{\sqrt{p}}{p} - 3(-\frac{\sqrt{p}}{p}) = \frac{3\sqrt{p}}{p}$

ج) $-\frac{\sqrt{p}}{p} + 3(\frac{\sqrt{p}}{p}) - 2(-\frac{\sqrt{p}}{p}) = \frac{2\sqrt{p}}{p} + \frac{2\sqrt{p}}{p} = \frac{4\sqrt{p}}{p}$

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

$x=a \Rightarrow a^2 + 5a = 1a + a + 1 \quad a^2 + a = 1 \quad a^2 + a - 1 = 0 \quad \begin{cases} a=1 \\ a=-1 \end{cases}$

$f(x) = \begin{cases} x^2 + 5x & x \geq 1 \\ 2x + 1 & x \leq 1 \end{cases} \quad f(1) = 1 + 5 = 6$

$f(x) = \begin{cases} 2x^2 - 6 & x \geq 1 \leq x \leq -3 \\ a + 2x & -3 \leq x \leq -1 \end{cases}$

$x = -3 \Rightarrow 2(-3)^2 - 6 = a + 2(-3) \quad 18 - 6 = a - 6 \quad a + 6 = 12 \quad a = 6$

الف) $x^3 - 5x^2 \neq 0 \quad x^2(x-5) \neq 0 \quad D_f = \mathbb{R} - \{0, 5\}$

(۵)

ب) $2x^3 + 5x^2 + 2x + 1 \neq 0 \quad 2x(x^2 + 1) + 5(x^2 + 1) \neq 0 \quad (x^2 + 1)(2x + 5) \neq 0 \quad x = -2.5$

$D_f = \mathbb{R} - \{-2.5\}$

الف) $y = \sqrt{x^2 - 1} + \sqrt{x - 2}$

(۶)

$\begin{cases} x \geq 2 \\ x^2 - 1 \geq 0 \end{cases} \Rightarrow \begin{cases} x \geq 2 \\ x \geq 1 \\ x \leq -1 \end{cases} \Rightarrow x \geq 2 \quad D_f = [2, +\infty)$

ب) $y = \frac{\sqrt{9 - 3x}}{\sqrt{9x - 3}}$

$\begin{cases} 9 - 3x \geq 0 \Rightarrow 3x \leq 9 \Rightarrow x \leq 3 \\ 9x - 3 > 0 \Rightarrow 9x > 3 \Rightarrow x > \frac{1}{3} \end{cases} \Rightarrow \frac{1}{3} < x \leq 3 \quad D_f = (\frac{1}{3}, 3]$

$$\sqrt{12-a} + \sqrt{b-9} = 0 \quad a=12 \quad b=9 \quad \frac{b}{a} = \frac{9}{12} = \frac{3}{4} \quad (V)$$

الف) $\frac{x^2 - x - 9}{x^2 - 12x^2 + 36} \geq 0 \Rightarrow \frac{(x-3)(x+3)}{(x^2-9)(x^2-4)} \geq 0$

جمع ضرایب 0 ← $x-1$ ← x

-3	-2	2	3
+	-	-	+

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

ب) $\frac{x^3 - 2x^2 - 5x + 6}{x^3 + 12x^2 - 5x - 6} \geq 0$

جمع ضرایب زوج ← $x+1$ ← x

-3	-2	-1	1	2	3
+	-	+	-	+	-

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

الف) $|x| - 3 \geq 0 \Rightarrow |x| \geq 3 \Rightarrow [x] \geq 3 \quad x \geq 3 \quad D_f = [3, +\infty) \quad (9)$

ب) $|x| - 5 \geq 0 \Rightarrow |x| \geq 5 \Rightarrow [x] \geq 5 \quad x \geq 5 \quad D_f = [5, +\infty) \quad (9)$

الف) $\frac{x+1}{|x-3|} \geq 0 \Rightarrow \frac{-1}{-} \frac{0}{+} \frac{3}{+} \Rightarrow D_f = [-1, +\infty) - \{3\}$

ب) $\frac{9-x}{x^2+2x+5} \geq 0 \Rightarrow \frac{9}{+} \frac{-}{-} \Rightarrow D_f = (-\infty, 9]$

⊕ $\Delta < 0 \Rightarrow$ $\frac{9-x}{x^2+2x+5} \geq 0 \Rightarrow \frac{9}{+} \frac{-}{-} \Rightarrow D_f = (-\infty, 9]$

ب) $\begin{cases} [x] - 5 \geq 0 \Rightarrow [x] \geq 5 \quad x \geq 5 \\ 3 - [x] \geq 0 \Rightarrow [x] \leq 3 \quad x < 3 \end{cases} \Rightarrow \emptyset$



سایس / از سنا