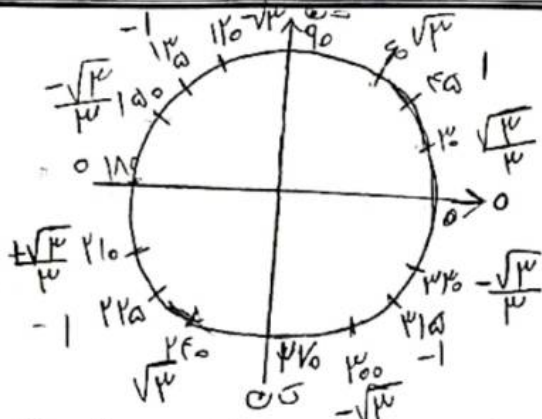




(1)

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

(2)

ب) $-\left(\frac{\sqrt{p}}{p}\right) + \frac{\sqrt{p}}{p} - 2\left(-\frac{\sqrt{p}}{p}\right) = \frac{2\sqrt{p}}{p}$

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

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

$x=a \Rightarrow a^p + \epsilon a = \epsilon a + a + 1 \quad a^p + a = 2 \quad a^p + a - 2 = 0 \rightarrow a=1$
 $\rightarrow a=-1$

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

(3)

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

الف) $x^p - \epsilon x \neq 0 \quad x^p(x - \epsilon) \neq 0 \quad D_f = \mathbb{R} - \{0, \epsilon\}$

(4)

ب) $2x^p + \epsilon x^p + 2x + 1 \neq 0 \quad 2x(x^p + 1) + \epsilon(x^p + 1) \neq 0 \quad D_f = \mathbb{R} - \{-1\}$
 $(x^p + 1)(2x + \epsilon) \neq 0$
 $x = -1$

الف) $y = \sqrt{x^p - 1} + \sqrt{x - 2} \quad x \geq 2$
 $x^p - 1 \geq 0 \quad x \geq 1$
 $x \leq -1 \quad \Rightarrow x \geq 2$
 $D_f = [2, +\infty)$

(5)

ب) $y = \frac{\sqrt{9 - 3x}}{\sqrt{9x - 3}}$
 $9 - 3x \geq 0 \Rightarrow 3x \leq 9 \Rightarrow x \leq 3$
 $9x - 3 > 0 \Rightarrow 9x > 3 \Rightarrow x > \frac{1}{3}$
 $D_f = \left(\frac{1}{3}, 3\right]$

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

الف) $\frac{x^2 - x - 9}{x^2 - 12x^2 + 36} \geq 0 \Rightarrow \frac{(x-3)(x+3)}{(x^2-9)(x^2-6)} \geq 0$

جمع ضرایب 0 ← $x-1$ ← x

-3	-2	1	3
+	-	-	+

$D_f = (-\infty, -3) \cup (1, +\infty) - \{3\}$

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

جمع ضرایب زوج 0 ← $x+1$ ← x

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

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

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

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

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

$\Rightarrow [-1, 9] - \{3\}$

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

سپاس از شما