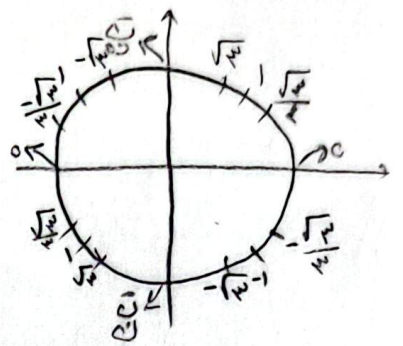




الف) $\frac{1}{2} - 1 + (-1) = -\frac{1}{2}$

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

ج) $\frac{-\sqrt{2}}{2} + 2\frac{\sqrt{2}}{2} - 2(-\frac{\sqrt{2}}{2}) = \frac{2\sqrt{2}}{2} > 1+1=2$

$a^2 + 2a - 2a + 2 \rightarrow a^2 + a - 2 = 0 \rightarrow \begin{cases} a = -2 \\ a = 1 \end{cases} \xrightarrow{a > 0} a = 1$

$f(1) = 1^2 + 2(1) = 3$

$x = -2 \Rightarrow 11 - b = -9 + a \rightarrow a + b = 20$

↓

$x \leq -2$ و $x \geq 1$

$-2 \leq x \leq 1$

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

ب) $(x^2+1)(x+2) \neq 0 \Rightarrow x \neq -2 \rightarrow D_f = \mathbb{R} - \{-2\}$

الف) $x^2 - 1 \geq 0 \Rightarrow x^2 \geq 1$ و $x \geq 2 \Rightarrow D_f = [2, +\infty)$

ب) $5 - 2x \geq 0 \rightarrow x \leq \frac{5}{2}$ و $4x - 2 > 0 \rightarrow x > \frac{1}{2} \Rightarrow D_f = (\frac{1}{2}, \frac{5}{2}]$

$a \leq b$ و $x \geq a \Rightarrow x \leq \frac{b}{a}$ و $x \geq \frac{a}{b}$

$\rightarrow \frac{b}{2} = \frac{a}{2} \Rightarrow \frac{b}{a} = 1$

الف) $y = \sqrt{\frac{(x-1)(x+1)}{(x^2-9)(x^2-5)}} \rightarrow \frac{-2 - 1^*}{+3 - 1^*} \frac{2 - 1^*}{+3 - 1^*} \rightarrow D_f = (-\infty, -1) \cup (1, 3) \cup (3, +\infty)$

ب) $y = \sqrt{\frac{(x-1)(x-2)(x+1)}{(x+1)(x+2)(x-2)}} \rightarrow \frac{-2 - 1^*}{+3 - 1^*} \frac{-1 - 1^*}{+3 - 1^*} \frac{2 - 1^*}{+3 - 1^*} \rightarrow D_f = (-\infty, -2) \cup (-1, 1) \cup (2, +\infty)$

الف) $[x] \geq 2 \Rightarrow x \geq 2 \rightarrow D_f = [2, +\infty)$

ب) $[x] \geq 2 \Rightarrow x \geq 2 \Rightarrow D_f = [2, +\infty)$

$$c) y = \sqrt{\frac{x+1}{x-1}} + \sqrt{\frac{6-x}{x^2+x+5}} \rightarrow x \leq 4 \quad (1)$$

$$\rightarrow DA = [-1, 9] \cup (3, 4]$$

$$\rightarrow \frac{-1}{-1+8} \rightarrow x \geq -1 - \{3\} \rightarrow (3)$$

$$c) [x] \geq 8 \rightarrow \underbrace{x \geq 8}_A$$

$$[x \leq 4] \rightarrow \underbrace{x \leq 4}_B \rightarrow DA = A \cap B = \emptyset$$