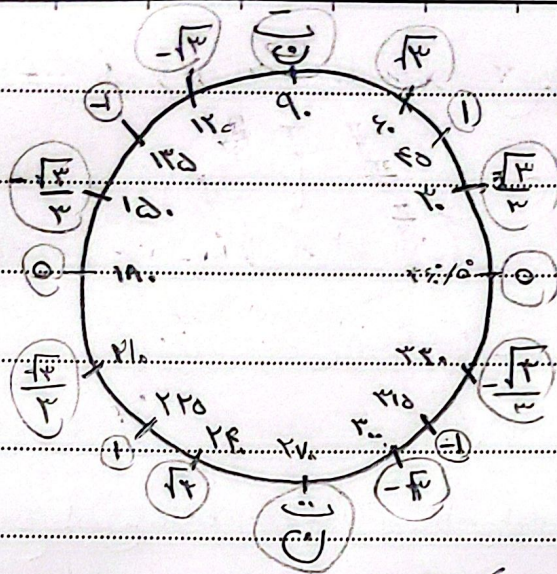




الف) $\frac{1}{\sqrt{3}} + (-1) + 2(-1) = \frac{-5}{\sqrt{3}}$

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

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

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

$f(x) = x^2 + f(x) = 2x + x + 2 \rightarrow f(x) = x^2 + x - 2$

$= (x+2)(x-1) = 0 \xrightarrow{x>0} x = 1$

$\rightarrow f(1) = 1^2 + f(1) = 2$

$|x+1| \geq 2 \sim x+1 \geq 2, x+1 \leq -2 \sim \frac{-3}{-1} \quad |$

$f(-2) = 1 \wedge -b = a - 9 \rightarrow a + b = 28$

$$1 \text{ الف) } x^3 - 4x^2 \neq 0 \rightarrow x(x^2 - 4x) \neq 0 \rightarrow x(x)(x-4) \neq 0 \quad \textcircled{A}$$

$$2 \rightarrow D_f = \mathbb{R} - \{0, 4\}$$

$$3 \text{ ب) } 2x^3 + 5x^2 + 2x + 1 \neq 0 \rightarrow 2(x^3 + 2x^2 + x + \frac{1}{2}) \neq 0$$

$$4 \rightarrow 2(x^2(x+2) + (x+2)) \neq 0 \rightarrow 2(x+2)(x^2+1) \neq 0$$

$$5 \quad D_f = \mathbb{R} - \{-2\} \quad \begin{array}{c} -2 \\ -4+ \\ +0.5 \end{array}$$

$$6 \quad \textcircled{9}$$

$$7 \text{ الف) } |x^2 - 1| \geq 0 \rightarrow \frac{-1}{+4} \frac{1}{-4} \rightarrow x \geq 1, x \leq -1$$

$$8 \text{ II) } x - 2 \geq 0 \rightarrow x \geq 2$$

$$9 \text{ I} \cap \text{II} \rightarrow x \geq 2$$

$$10 \text{ ب) I) } 6 - 3x \geq 0 \rightarrow 3x \leq 6 \rightarrow x \leq 2$$

$$11 \text{ II) } 6x - 3 > 0 \rightarrow 6x > 3 \rightarrow x > \frac{1}{2}$$

$$12 \text{ I} \cap \text{II} \rightarrow \frac{1}{2} < x \leq 2$$

$$13$$

$$14 \text{ V) } \text{نبرد بالا} \sim \text{ازای } x=2 \text{ باید صفر باشد}$$

$$15 \quad 6(2) - \alpha = 0 \rightarrow \alpha = 12 \quad / \quad b - 3(2) = 0 \rightarrow b = 6$$

$$16 \quad b/\alpha = 0.5$$

$$17 \quad \textcircled{A}$$

$$18 \text{ الف) } \frac{x^2 - x - 6}{x^4 - 13x^2 + 36} \geq 0 \rightarrow \frac{(x-3)(x+2)}{(x^2-9)(x^2-4)}$$

$$19 \quad \frac{(x-3)(x+2)}{(x-3)(x+3)(x-2)(x+2)} \quad \begin{array}{c} x > 3 \\ -3 \quad -2^* \quad 2 \quad 3^* \end{array}$$

$$20 \quad \frac{(x-3)(x+2)(x-2)(x+2)}{(x-3)(x+3)(x-2)(x+2)} \quad \begin{array}{c} 3 > 3 > 2 > 2 \\ +3 \quad -3 \quad -3 \quad +3 \end{array}$$

PARAMOUNT

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

$$\text{أ) } \frac{x^3 - 2x^2 - 3x + 4}{x^3 + 2x^2 - 3x - 4} \geq \frac{x-1}{x+1} \leftarrow \text{مقابل}$$

$$\frac{x-1}{x+1} \leftarrow \text{مقابل زوج}$$

$$\rightarrow (x-1)(x^2 + x - 4) = (x-1)(x-2)(x+3)$$

$$(x+1)(x^2 + x - 4) \quad (x+1)(x-2)(x+3) \quad \frac{1, 2, 3}{-1, 2, -3}$$

$$\begin{array}{ccccccc} -1^* & - & 1 & 2^* & & & \\ +\frac{1}{x} & +\frac{1}{x} & -1 & +\frac{1}{x} & + & (-\infty, -3) \cup (-2, -1) \cup [1, 2) \cup (2, \infty) \end{array}$$

$$\text{الف) } x[x] \geq 1 \rightarrow [x] \geq 2 \rightarrow D_f = [2, \infty) \quad (9)$$

$$\text{ب) } x[x] \geq 2 \rightarrow [x] \geq 2, \Delta D_f [2, +\infty)$$

$$\text{الف) } \frac{x+1}{|2x-1|} \geq \frac{-1}{-1} + \frac{2^*}{\frac{1}{x}} \rightarrow x \geq -1 \quad (10)$$

$$\text{II } \frac{2-x}{x^2+2x+1} \rightarrow \frac{1}{x+1} \quad x \leq 1$$

$$I \cap II \rightarrow [-1, 1] - \{2\}$$

$$\text{أ) } I[x] \geq 1 \rightarrow [1, +\infty)$$

$$\text{II } 2 - [x] \geq 0 \rightarrow [x] \leq 2 \rightarrow (-\infty, 2)$$

$$I \cap II = \emptyset$$