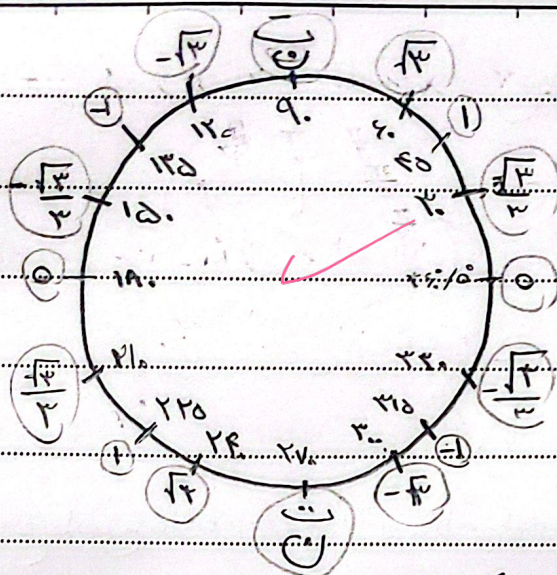




الف) $\frac{1}{\sqrt{3}} + (-1) + 2(-1) = -\frac{5}{\sqrt{3}}$

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

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

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

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

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

$\rightarrow f(1) = 1^2 + f(1) = 5$

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

$f(-3) = 18 - b = a - 6 \rightarrow a + b = 24$

$$1 \text{ الف) } x^3 - 5x^2 \neq 0 \rightarrow x(x^2 - 5x) \neq 0 \rightarrow x(x)(x-5) \neq 0 \quad (A)$$

$$2 \rightarrow D_f = \mathbb{R} - \{0, 5\}$$

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

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

$$5 D_f = \mathbb{R} - \{-2\} \quad (B) \quad \frac{-2^3}{-8+} \quad + 0 \text{ جواب}$$

$$6 \quad (C)$$

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

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

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

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

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

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

$$13$$

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

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

$$16 b/\alpha = 0.5 \quad (E)$$

$$17 \quad (F)$$

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

$$19 \frac{(x-3)(x+2)}{(x-3)(x+3)(x-2)(x+2)} \quad x > 3 \quad \frac{-3}{-3} \quad \frac{-2}{-2} \quad \frac{2}{2} \quad \frac{3}{3}$$

$$20 \frac{(x-3)(x+3)(x-2)(x+2)}{x^2-3x^2-2x-2} \quad + \frac{3}{3} - \frac{3}{3} - \frac{2}{2} + \frac{2}{2} +$$

PARAMOUNT

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

$$\frac{x^3 - 2x^2 - 3x + 4}{x^3 + 2x^2 - 3x - 4} \geq \frac{x-1}{x+1} \leftarrow \text{عبارت اول}$$

$$\frac{x-1}{x+1} \leftarrow \text{عبارت دوم = زوج}$$

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

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

$$\frac{-1^*}{+} \frac{-1}{+} \frac{1}{-} \frac{2^*}{+} \quad (-\infty, -3) \cup (-2, -1) \cup [1, 2) \cup (3, \infty)$$

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

$$\text{ب) } 1[x] \geq 2 \rightarrow [x] \geq 3, D_f = [3, +\infty)$$

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

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

$$I \cap II \rightarrow [-1, 1] - \{3\}$$

$$\text{ب) } I[x] \geq 1 \rightarrow [1, +\infty) \quad (11)$$

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

$$I \cap II = \emptyset$$