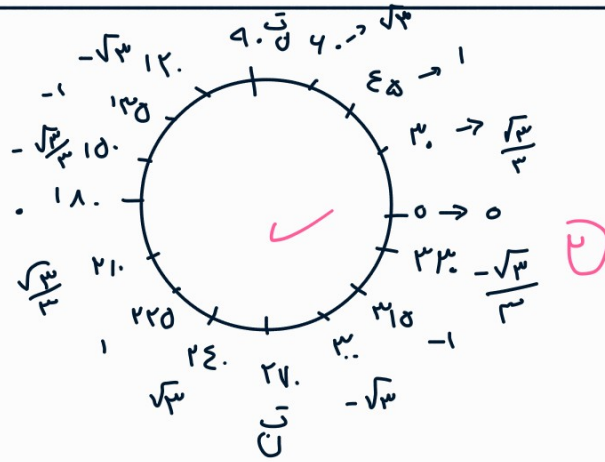




$$\tan = \frac{\sin}{\cos}$$

-۱

$$\text{ج -۲) } -C \cdot \frac{\Delta n}{4} + \sin \frac{2n}{3} - 3 \sin \frac{4n}{3} = -(-\frac{\sqrt{3}}{2}) + \frac{\sqrt{3}}{2} - 3(-\frac{\sqrt{3}}{2}) = \frac{5\sqrt{3}}{2}$$

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

۲

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

(۱/۵)

$$\text{ج) } \cot \frac{2\pi}{3} = \cot 120^\circ = -\frac{\sqrt{3}}{3} \rightarrow -\frac{\sqrt{3}}{3} + \sqrt{3} + 2\sqrt{3} = \frac{\sqrt{3} + 2\sqrt{3} - \sqrt{3}}{3} = \frac{2\sqrt{3}}{3} \times$$

$$\cot \frac{2\pi}{3} = \cot 120^\circ = -\frac{\sqrt{3}}{3}$$

$$\tan \frac{\pi}{4} = \tan 45^\circ = 1$$

$$\text{ج -۲) } C \cdot \frac{\Delta n}{4} + 3 \cot \frac{4n}{3} - 2 \tan \frac{2n}{3} = -\frac{\sqrt{3}}{3} + 3(\frac{\sqrt{3}}{3}) - 2(-\frac{\sqrt{3}}{3}) = \frac{4\sqrt{3}}{3}$$

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

$$a^2 + \epsilon a = 2a + a + 1 \quad a^2 + a - 2 = 0 \quad (a-1)(a+2) = 0 \quad \xrightarrow{a > 0} a = 1 \quad -۳$$

$$f(1) = 1^2 + \epsilon(1) = 2 \quad \text{C}$$

$$|x+1| \geq 2 \rightarrow x+1 \geq 2 \rightarrow x \geq 1 \quad \vee \quad x+1 \leq -2 \rightarrow x \leq -3 \quad -۴$$

$$\text{if } x = -3 \rightarrow 2x^2 - 6 = 2(-3)^2 - 6 = 18 - 6 = 12$$

$$a+b = 12 \quad \text{C}$$

$$y = \frac{1}{x^3 - 2x^2} \rightarrow x^3 - 2x^2 = x^2(x-2) \quad \begin{matrix} x \neq 0 \\ x \neq 2 \end{matrix} \quad D_f = \mathbb{R} - \{0, 2\} \quad -\infty$$

$$y = \frac{1}{2x^3 + 5x^2 + 2x + 2} \rightarrow 2x^3 + 5x^2 + 2x + 2 \rightarrow 2(x^3 + 2x^2 + x + 1) \rightarrow 2(x+1)(x^2+x+1)$$

مشتق

$$x \neq -1, \quad D_f = \mathbb{R} - \{-1\}$$

الف) $x^2 - 1 \geq 0 \rightarrow x^2 \geq 1 \rightarrow x \geq 1, x \leq -1 \quad D_f = (-\infty, -1] \cup [1, +\infty) \quad -2$

$x - 2 \geq 0 \rightarrow x \geq 2 \xrightarrow{\text{استدلال}} [2, +\infty) \quad \text{ب)}$

ب) $4 - 2x \geq 0 \quad x \leq 2 \quad 4x - 2 > 0 \quad x > \frac{1}{2} \quad D_f = (\frac{1}{2}, 2] \quad \text{ب)}$

ج) $y = \sqrt{4x-a} + \sqrt{b-2x} \rightarrow b-2x \rightarrow x \leq \frac{b}{2} \rightarrow \frac{b}{2} = 2 \rightarrow b = 4$

$4x-a \geq 0 \rightarrow x \geq \frac{a}{4} \rightarrow \frac{a}{4} \geq 2 \rightarrow a = 12$

$\frac{b}{a} = \frac{4}{12} = \frac{1}{3}$

الف) $\overline{f(x)} = x^2 - x - 4 = (x-2)(x+2)$

$\Rightarrow \frac{1}{(x-2)(x+2)} \geq 0$

مخرج $= x^2 - 12x^2 + 34 = (x-2)(x+2)(x-3)(x+3)$

$x < -3, x > 2 \quad x \neq 3, 2, -2, -3$

$(-\infty, -3) \cup (2, 3) \cup (3, +\infty)$

$$ب) \quad 2x^3 - 2x^2 - 5x + 4 = (x-1)(x-3)(x+2)$$

$$ج) \quad x^3 + 2x^2 - 5x - 4 = (x+1)(x+3)(x-2)$$

$$\frac{(x-1)(x-3)(x+2)}{(x+1)(x+3)(x-2)} \geq 0$$

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

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

9- صورت سوال را استاده نوشتن :- $y = \sqrt{2x} - 2 \rightarrow [x] \geq \frac{4}{2} \quad x \geq 2 \quad D_f = [2, +\infty)$

الف) $y = \sqrt{2x} - 4 \rightarrow 2x - 16 \geq 0 \rightarrow [x] \geq \frac{16}{2} \rightarrow x \geq 8 \rightarrow D_f = [8, +\infty)$ (1,0)

ب) $\sqrt{2x} - 8$ $2x - 64 \geq 0$
 $[x] \geq \frac{64}{2} \rightarrow x \geq 32 \quad D_f = [32, +\infty)$

الف) $\sqrt{\frac{x+1}{|x-3|}} + \sqrt{\frac{4-x}{x^2+2x+2}}$ $x+1 \geq 0 \rightarrow x \geq -1, x \neq 0$

$x^2 + 2x + 2 = (x+1)^2 + 1 > 0$ $4-x \geq 0$
 $x \leq 4$

$$D_f = (-1, 3) \cup (3, 4]$$

ب) $\sqrt{[x]-2} + \sqrt{2-[x]} \rightarrow [x]-2 \geq 0 \rightarrow [x] \geq 2 \rightarrow x \geq 2$

$D_f = \emptyset$ $2-[x] \geq 0 \rightarrow [x] \leq 2 \rightarrow [x] \leq 2 \rightarrow x < 3$

