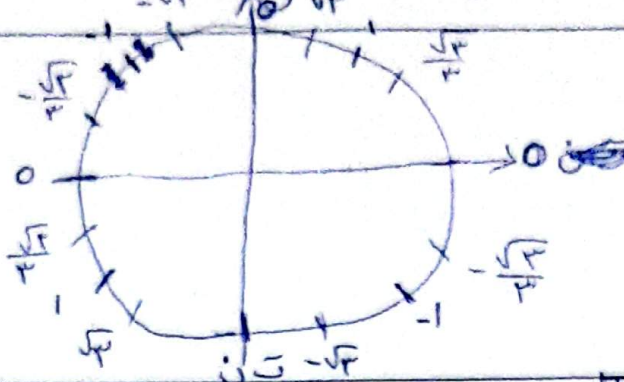
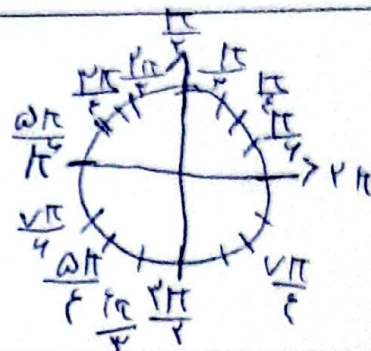




۱

الف) $\frac{1}{2} + (-1) + 2(-1) = -2 + \frac{1}{2} = -\frac{5}{2}$
 ب) $-\left(-\frac{\sqrt{2}}{2}\right) + \frac{\sqrt{2}}{2} - 2\left(-\frac{\sqrt{2}}{2}\right) = \frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} + \sqrt{2} = 2\sqrt{2}$
 ج) $-\frac{\sqrt{3}}{2} + 2\left(\frac{\sqrt{3}}{2}\right) - 2\left(-\frac{\sqrt{3}}{2}\right) = -\frac{\sqrt{3}}{2} + \sqrt{3} + \sqrt{3} = \frac{3\sqrt{3}}{2}$
 د) $\cos(0) + \sin\left(\frac{\pi}{4}\right) = \frac{1}{2}$



۲

$x^2 + \epsilon_n = 2n + a + 2 \rightarrow a = 2$

$x^2 + \epsilon_n = 2n + 2 \Rightarrow x^2 + \epsilon_n - 2n - 2 = 0 \Rightarrow x^2 + \epsilon_n - 2 = 0 \Rightarrow (x-1)(x+1) = 0$

$x_1 = 1 \rightarrow \boxed{x_1 = 1} \checkmark \rightarrow a = 1$
 $a > 0 \cup 2 \leftarrow x_2 = -2 \times$

$f(1) = 1^2 + \epsilon = 0 \Rightarrow \boxed{f(1) = 0}$

۳

$|n+1| > 2 \Rightarrow \cancel{x < n+1} > 2 \Rightarrow \boxed{-2 \leq n < 1} \cap (0, -3] \cup [1, \infty)$

$a + 2n = 2x^2 - b \Rightarrow 2x^2 - 2a = a + b \Rightarrow \cancel{2(x^2 - a)} \Rightarrow 2n(x-1) = a+b$

$f(-2) = 1 - b$
 $f(-2) = a + 2n$
 $\rightarrow 1 - b = a + 2n \Rightarrow 1 - 2x = a + b \Rightarrow \boxed{1x = a + b}$

۴

الف) $y = \frac{1}{x(x-4)}$ $x^2(x-4) \neq 0 \Rightarrow \boxed{D_y = \mathbb{R} - \{0, 4\}}$

ب) $y = \frac{1}{2x^2 + \epsilon_n + 2n + 2} \Rightarrow y = \frac{1}{2(x^2 + \epsilon_n + n + 1)} \Rightarrow y = \frac{1}{(x-1)^2 - (n-1)(n+3)}$
 $\boxed{D_y = \mathbb{R} - \{1\}}$

۵

الف) $\sqrt{x-1} \geq 0 \Rightarrow x-1 \geq 0 \Rightarrow x \geq 1$
 $\sqrt{x} \geq 0 \Rightarrow x \geq 0$

$D_y = \mathbb{R} - (-1, 0) \cup x \geq 1 \Rightarrow D_y = [1, +\infty)$

ب) $y = \frac{\sqrt{4-2x}}{\sqrt{x-1}} \Rightarrow \begin{cases} 4-2x \geq 0 \Rightarrow 2-x \geq 0 \Rightarrow x \leq 2 \\ 4x-2 \geq 0 \Rightarrow 2x-1 \geq 0 \Rightarrow x \geq \frac{1}{2} \end{cases} \Rightarrow D_y = [\frac{1}{2}, 2]$

بشكل ايسر
 ان x يجب ان يكون
 اقل من 2
 واكثر من 1/2

$\sqrt{12-a} \geq 0 \Rightarrow 12-a \geq 0 \Rightarrow a \leq 12$
 $\sqrt{b-4} \geq 0 \Rightarrow b-4 \geq 0 \Rightarrow b \geq 4$
 $\frac{b}{a} = \frac{4}{12} = \frac{1}{3}$

الف) $x^2 - 13x^2 + 34 \neq 0 \Rightarrow x^2 = t \Rightarrow t^2 - 13t + 34 \Rightarrow (t-9)(t-4) \Rightarrow$

$x^2 = t \Rightarrow x = \pm \sqrt{t} \Rightarrow x = \pm \sqrt{9}, \pm \sqrt{4} \Rightarrow x = \pm 3, \pm 2$
 $D = (2, +\infty) \cup (-\infty, 3)$

ب) $\frac{x(x^2-2x-5)+4}{x(x^2+2x-5)-4} \geq 0 \quad \Delta \leq 0 \Rightarrow x^2 + 2x - 5 = 0 \quad \Delta = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

الف) $x^2[x] - 4 \geq 0 \Rightarrow x^2[x] \geq 4 \Rightarrow [x] \geq \frac{4}{x^2} \Rightarrow [x] \geq 2 \Rightarrow D_y = [2, +\infty)$

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

الف) $|x-2| \neq 0 \Rightarrow x \neq 2$, $\frac{x+1}{x-1} \geq 0 \Rightarrow x+1 \geq 0 \Rightarrow x \geq -1$

$x^2 + 2x + 1 \neq 0 \Rightarrow x+1 \neq 0 \Rightarrow x \neq -1$, $\frac{4-x}{x^2+2x+1} \geq 0 \Rightarrow 4-x \geq 0 \Rightarrow x \leq 4$

$D_y = [-1, 4] - \{2\}$

ب) $[x] - 4 \geq 0 \Rightarrow [x] \geq 4 \Rightarrow x \geq 4$
 $x - [x] \geq 0 \Rightarrow [x] \leq x \Rightarrow x \leq 2 \Rightarrow D_y = (-\infty, 2) \cup [4, +\infty)$

$x(x^2+2x-5)-4 \neq 0 \Rightarrow x \neq 0$
 $x \neq -2$