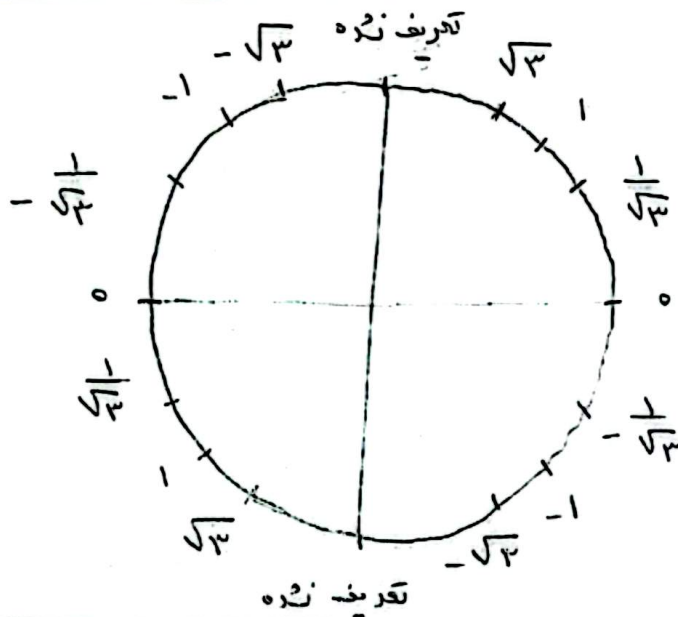




(1)

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

(2)

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

$$\text{ج) } -\frac{1}{\sqrt{2}} + 2 \times \frac{1}{\sqrt{2}} - 2 \times -\frac{1}{\sqrt{2}} = -\frac{1}{\sqrt{2}} + \frac{2}{\sqrt{2}} + \frac{2}{\sqrt{2}} = \frac{3}{\sqrt{2}} = \frac{3\sqrt{2}}{2}$$

$$\Rightarrow \cos 0 + \sin \left(\pi \times \frac{1}{2} \right) \rightarrow 1 + 1 = 2$$

(3)

$$a^2 + 2a = 2a + a + 1 \rightarrow a^2 + a - 1 = 0 \rightarrow (a+2)(a-1) = 0$$

$$a = -2 \text{ و } a = 1$$

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

$$\hookrightarrow 2 \times 1 + 1 + 1 = 4$$

$$\left. \begin{array}{l} n+1, 2 \\ n, 1 \end{array} \right\} \begin{array}{l} n+1, 2 \\ n, 1 \end{array} \rightarrow n = -1 \rightarrow 2-b = a-2$$

$$2 = a+b$$

(4)

$$\text{الف) } x^2 - 4x^2 \neq 0 \rightarrow x^2(x-4) \neq 0 \rightarrow x \neq 0$$

$$\hookrightarrow x-4 \neq 0 \rightarrow x \neq 4$$

$$DF = R - \{0, 4\}$$

(5)

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

$$\hookrightarrow (x+2)(x^2+1) \neq 0 \quad x \neq -2 \quad x^2 \neq -1 \quad DF = R - \{-2\}$$

الف) $x^2 - 1 \neq 0 \Rightarrow x^2 \neq 1 \Rightarrow x \neq 1, x \neq -1 \Rightarrow PF = (-\infty, -1) \cup (1, +\infty)$ (4)

ب) $4 - 2x \neq 0 \rightarrow 4 \neq 2x \rightarrow 2 \neq x$
 $4x - 2 \neq 0 \rightarrow 4x \neq 2 \rightarrow 2x \neq 1 \rightarrow x \neq \frac{1}{2}$ } $PF = [\frac{1}{2}, 2]$

الف) $4x - a \neq 0 \rightarrow x \neq \frac{a}{4}$ } $PF = [\frac{a}{4}, \frac{b}{r}]$
 ب) $b - 2x \neq 0 \rightarrow \frac{b}{2} \neq x$ } $\frac{a}{4} = 2 \rightarrow a = 8$
 $\frac{b}{2} = 2 \rightarrow b = 4$ } $\frac{b}{a} = \frac{4}{8} = \frac{1}{2}$

الف) $\frac{(x-3)(x+2)}{(x^2-9)(x^2-4)} \neq 0$ } $PF = (-\infty, -3) \cup (2, +\infty)$

$x = 3, x = -2, x^2 = 9, x^2 = 4$
 $x = \pm 3, x = \pm 2$

ب) $\frac{(x+1)(x^2-x-6)}{(x+1)(x^2+x-6)} \neq 0 \rightarrow \frac{(x-1)(x-3)(x+2)}{(x+1)(x+2)(x-2)} \neq 0$
 $PF = (-\infty, -2) \cup (-1, 1) \cup (2, +\infty)$

الف) $2[x] - 4 \neq 0 \rightarrow 2[x] \neq 4 \rightarrow [x] \neq 2 \rightarrow x \neq 2 \Rightarrow PF = [2, +\infty)$ (9)

ب) $2[x] - 5 \neq 0 \rightarrow 2[x] \neq 5 \rightarrow [x] \neq \frac{5}{2} \rightarrow [x] \neq 2.5 \rightarrow x \neq 2.5$
 $PF = [2.5, +\infty)$

الف) $\frac{x+1}{x-2} \neq 0 \Rightarrow x+1 \neq 0 \rightarrow x \neq -1 \rightarrow [1, +\infty)$ (10)

$|x-2| \neq 0 \Rightarrow x \neq 2$ } $PF = [1, +\infty) - \{2\}$

$|x-2| \neq 0 \rightarrow x \neq 2$

ب) $[x] - 4 \neq 0 \rightarrow [x] \neq 4 \rightarrow x \neq 4$
 $2 - [x] \neq 0 \rightarrow 2 \neq [x] \rightarrow x \neq 2$ } $PF = (-\infty, 2) \cup (4, +\infty)$