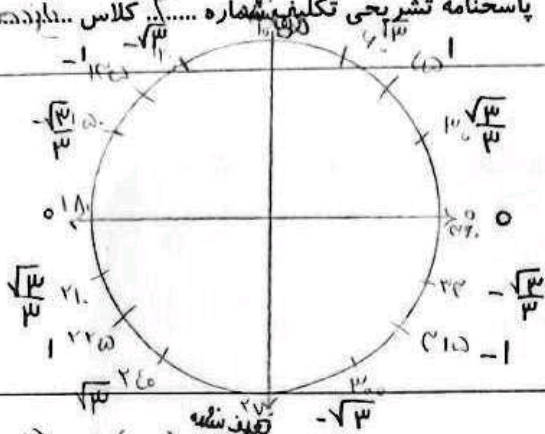




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$$\text{الف) } \frac{1}{2} + (-1) + 2(-1) = -2\frac{1}{2} \quad \text{د) } b + 1 = 1$$

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

$$\text{ج) } -\frac{\sqrt{3}}{2} + 3(\frac{\sqrt{3}}{2}) - 2(-\frac{\sqrt{3}}{2}) = +\frac{4\sqrt{3}}{2}$$

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$$f(1)$$

$$f(x) = \begin{cases} x^2 + 2x & x \geq 1 \\ 2x + 1 & x < 1 \end{cases}$$

$$x = a = a^2 + 2a = 2a + a + 1$$

$$a^2 + a - 1 = 0$$

$$(a+1)(a-1) = 0 \Rightarrow a > 0 \Rightarrow \boxed{a=1}$$

$$\boxed{a=1}$$

$$f(1) = \underline{\underline{3}}$$

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$$f(x) = \begin{cases} 2x^2 - b & x+1 \geq 2 \\ a+2x & -2 \leq x \leq -1 \end{cases}$$

$$\begin{aligned} x+1 &\geq 2 & x+1 &\leq -2 \\ x &\geq 1 & x &\leq -3 \end{aligned}$$

$$x = 3 \quad \frac{2x^2 - b}{1} = a + 2 \quad \boxed{11 = a + b}$$

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$$y = \frac{1}{2^x - 2x^2} = \frac{1}{2^x(x-2)}$$

$$\begin{aligned} & \frac{2^x(x-2)}{2^x \neq 0, x-2 \neq 0, \boxed{x \neq 2}} \\ & \frac{1}{2^x(x-2)} \neq 0 \end{aligned}$$

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$$y = \frac{1}{2x^3 + 4x^2 + 2x + 1}$$

$$\frac{2x^2(x+2) + 2(x+1)}{(x+2)(2x^2+2)} \neq 0 \quad \boxed{D = \mathbb{R} - \{-1\}}$$

$$\begin{aligned} x+2 &\neq 0 \\ \boxed{x \neq -2} \end{aligned}$$

$$\begin{aligned} 2x^2+2 &\neq 0 \\ 2(x^2+1) &\neq 0 \quad \boxed{x^2+1 \neq 0} \end{aligned}$$

الف) $y = \sqrt{x^2 - 1} + \sqrt{x - 2}$ $x - 2 \geq 0 \Rightarrow x \geq 2 \quad [2, +\infty) \cap [1, +\infty) \Rightarrow$
 $x^2 - 1 \geq 0 \Rightarrow x^2 \geq 1 \quad D_p = [1, +\infty)$
 $x \geq 1$

$\Rightarrow y = \frac{\sqrt{4 - \mu x}}{\sqrt{4x - \mu}}$ $4 - \mu x \geq 0 \Rightarrow \mu x \leq 4 \Rightarrow x \leq \frac{4}{\mu}$
 $4x - \mu > 0 \Rightarrow 4x > \mu \Rightarrow x > \frac{\mu}{4} \quad D_p = (\frac{\mu}{4}, \frac{4}{\mu}]$

$y = \sqrt{4x - a} + \sqrt{b - \mu x}$
 $4x - a \geq 0 \Rightarrow 4x \geq a \Rightarrow x \geq \frac{a}{4}$
 $b - \mu x \geq 0 \Rightarrow \mu x \leq b \Rightarrow x \leq \frac{b}{\mu}$
 $D_p = [\frac{a}{4}, \frac{b}{\mu}]$
 $\frac{a}{4} = \frac{b}{\mu} \Rightarrow \frac{b}{a} = \frac{\mu}{4}$
 $a = 12 \quad b = 4 \quad \frac{b}{a} = \frac{1}{3}$

الف) $y = \sqrt{\frac{x^2 - x - 4}{x^2 - 12x^2 + \mu x}}$ $= \sqrt{\frac{(x - \frac{1}{2})(x + \frac{1}{2})}{(x - 1)(x + 1)(x - \mu)(x + \mu)}}$
 $\Rightarrow y = \sqrt{\frac{x^2 - 2x^2 - \omega x + 4}{2x^2 + 2x^2 - \omega x - 4}}$ $= \sqrt{\frac{(x - 1)(x + 1)(x - \mu)(x + \mu)}{(x - 1)(x + 1)(x - \mu)(x + \mu)}}$
 $D_p = (-\infty, -\mu) \cup (\mu, +\infty)$
 $D_p = (-\infty, -1) \cup (-1, 1) \cup (1, +\infty)$

الف) $y = \sqrt{2[x] - 2}$ $2[x] - 2 \geq 0 \Rightarrow 2[x] \geq 2 \Rightarrow [x] \geq 1 \Rightarrow D_p = [1, +\infty)$
 $\Rightarrow y = \sqrt{2[x] - \omega}$ $2[x] \geq \omega \Rightarrow D_p = [\frac{\omega}{2}, +\infty)$

الف) $y = \sqrt{\frac{x+1}{|x-3|}} + \sqrt{\frac{4-x}{x^2+2x+1}}$ $D_p = [-1, 4] - \{3\}$

$\Rightarrow y = \sqrt{[x] - 4} + \sqrt{2 - [x]}$ $[x] - 4 \geq 0 \Rightarrow x = [x, +\infty)$
 $[x] \geq 2$
 $2 - [x] \geq 0 \Rightarrow [x] \leq 2 \Rightarrow x = (-\infty, 3)$
 $D_p = \emptyset$