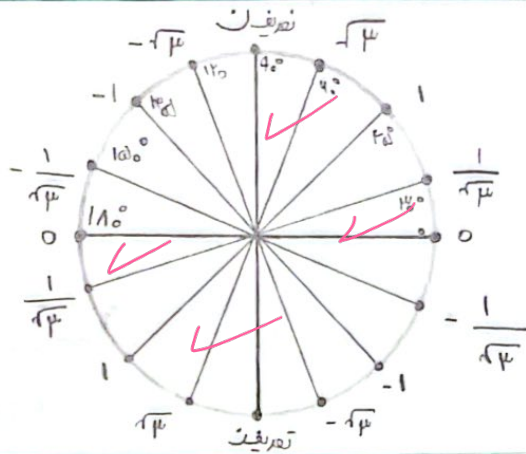


۱۹,۲۵ آفرین

صفحه آخر مقصود است!



۲

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

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

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

د) $\cos(0)=1 \quad \cos \frac{\pi}{3} = \frac{1}{2}$
 $1 + \sin(\frac{\pi}{3}) = 1 + 1 = 2$

۲

$a^2 + \epsilon a = 3a + 2$

$f(x) = \begin{cases} x^2 + \epsilon x & x \geq 1 \\ 3x + 2 & x \leq 1 \end{cases}$

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

$f(1) = 5$

۲

$| -3+1 | \geq 2 \rightarrow | -2 | \geq 2 \rightarrow \checkmark \rightarrow (-3) \rightarrow$ در دو شرط صادق است

$18-b = a-4 \rightarrow a+b = 18+4 = 22$

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۵-الف) $y = \frac{1}{x^3 - 4x^2} \rightarrow x^3 - 4x^2 = 0 \rightarrow x^2(x-4) = 0$
 $x=0$ یا $x=4$

$D_f = \mathbb{R} - \{0, 4\}$

الف) $x^3 - 4x^2 \neq 0 \rightarrow x^2(x-4) \neq 0 \quad x \neq 0, 4$

$D_f = \mathbb{R} - \{0, 4\}$

دقت کن!

ب) $(x^3 + \epsilon x^2) + (x^2 + \epsilon) \neq 0$

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$x^2(x+1) + x^2(x+1) = 0$
 $x+1=0$
 $x \neq -1$

$D_f = \mathbb{R} - \{-1\}$

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

$$\text{ب) } 4 - 13x \geq 0 \quad 13x \leq 4 \quad x \leq \frac{4}{13} \\ 4x - 13 \geq 0 \quad 4x \geq 13 \quad x \geq \frac{13}{4} \rightarrow D_f = \left[\frac{13}{4}, +\infty\right)$$

مخرج نباید صفر شود!

1, 2

$$4x - a \geq 0 \quad 4x \geq a \quad x \geq \frac{a}{4} \\ b - 13x \geq 0 \quad 13x \leq b \quad x \leq \frac{b}{13} \rightarrow D_f = \left[\frac{a}{4}, \frac{b}{13}\right]$$

$$\frac{a}{4} = \frac{b}{13} \rightarrow \frac{b}{a} = \frac{13}{4} \rightarrow \frac{1}{4} = \frac{1}{13}$$

2

$$\text{الف) } x^2 = t \rightarrow t^2 - 13t + 134 \\ (x-4)(x-5) \rightarrow x^2 - 9x + 20 \rightarrow x = \pm 4 \pm 13 \\ x^2 - x - 4 = (x-3)(x+2) \rightarrow x = -2, x = 3 \\ D_f = (-\infty, -3) \cup (1, 3) \cup (13, +\infty)$$

$$\text{ب) } x^2 - 13x^2 - 4x + 4 \quad \frac{x-1}{x^2 - x - 4} \\ x^2 + 13x^2 - 4x - 4 \quad \frac{x+1}{x^2 + x - 4} \\ y = \sqrt{\frac{(x-1)(x-13)(x+2)}{(x+1)(x+13)(x-4)}} \rightarrow -13, -1, 1, 13, 4 \\ D_f = (-\infty, -13) \cup (-1, -1) \cup (1, 13) \cup (4, +\infty)$$

$$\text{الف) } y = \sqrt{f(x) - 4} \rightarrow f(x) \geq 4 \quad [x] \geq 1 \quad x \geq 1 \quad D_f = [1, +\infty)$$

$$\text{ب) } y = \sqrt{f(x) - 4} \rightarrow f(x) \geq 4 \quad [x] \geq \frac{4}{13} \quad x \geq 13 \quad D_f = [13, +\infty)$$

$$\text{الف) } \sqrt{\frac{x+1}{x-13}} \rightarrow D_f = [-1, 13) \cup (13, +\infty)$$

$$\sqrt{\frac{4-x}{x^2+13x+4}} \rightarrow D_f = (-\infty, 4] \cap \rightarrow [-1, 13) \cup (13, 4]$$

$$\text{ب) } \sqrt{f(x) - 4} \rightarrow [x] \geq 4 \quad x \geq 4 \rightarrow D_f = [4, +\infty) \\ \sqrt{f(x) - 4} \rightarrow [x] \leq 13 \quad x \leq 13 \rightarrow D_f = (-\infty, 13) \rightarrow D_f = \emptyset$$

عبارت زیر را برای n باید نامتناهی و عبارت صفر به صفر باشد ...
(4-ب) $y = \frac{\sqrt{4-3n}}{\sqrt{4n-3}}$

$$4-3n \geq 0 \rightarrow n \leq 2$$

$$4n-3 > 0 \rightarrow n > \frac{1}{4}$$

$$\rightarrow \frac{1}{4} < n \leq 2 \rightarrow D_f = \left(\frac{1}{4}, 2 \right]$$