

۱۸، ۲۵

$$x=3 \rightarrow \sqrt{9a+18+3a+b} = 0$$

$$-12a+18=b \xrightarrow{\text{جایگذاری}} -12+18=-4$$

$$a=2 \rightarrow \text{مورد دوم: با معرجه} \Rightarrow a-2=0$$

$$b=-4$$

$$x^2+2x+1-m^2 \geq 0$$

$$(x+1)^2(1-m^2) \geq 0$$

$$(1-m)(1+m)$$

$$\begin{matrix} \text{min} & \text{max} \\ -1 & 1 \end{matrix}$$

$$1-(-1)=2$$

$$4-x^2 \geq 0 \rightarrow x^2 \leq 4$$

$$-2 \leq x \leq 2$$

مورد

مفروضه

$$[x]+[-x]+1 \neq 0$$

$$\neq -1$$

$$\Rightarrow \geq$$

$$\Rightarrow -2 \leq x \leq 2 \rightarrow \text{مورد صحیح}$$

$$\text{الف) } x^3+3x^2 \geq 0$$

$$x^2(x+3) \geq 0$$

$$\begin{matrix} \text{---} & \text{---} & \text{---} & \text{---} \\ \text{---} & \text{---} & \text{---} & \text{---} \end{matrix}$$

$$\rightarrow D_f = [-3, +\infty)$$

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

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

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

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

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$$\text{الف) } |x-2|-3 \geq 0$$

$$|x-2| \geq 3$$

$$x-2 \geq 3 \rightarrow x \geq 5$$

$$x-2 \leq -3 \rightarrow x \leq -1$$

$$\cup \rightarrow (-\infty, -1] \cup [5, +\infty)$$

$$\text{ب) } 4-|2-x| \geq 0$$

$$-|2-x| \geq -4$$

$$|2-x| \leq 4$$

$$-4 \leq 2-x \leq 4$$

$$-6 \leq -x \leq 2$$

$$-2 \leq x \leq 6$$

$$\rightarrow [2, 6]$$

الف) $\sqrt{1-x x } \geq 0$ $x \leq 0 \rightarrow 1+x^2 \leq 0 \rightarrow x^2 \leq -1$ خالی $x \geq 0 \rightarrow 1-x^2 \geq 0 \rightarrow x^2 \leq 1 \rightarrow -1 \leq x \leq 1$ ب) $\sqrt{3- x-5 } - 1 \neq 0 \rightarrow \sqrt{3- x-5 } > 0$ $\sqrt{3- x-5 } \neq 1$ $3- x-5 \neq 1 \rightarrow x-5 \neq 2 \rightarrow x-5 = 2$ $x-5 \neq 2 \rightarrow x \neq 7$ $x-5 \neq -2 \rightarrow x \neq 3$ $D_f = (-\infty, 3) \cup (7, \infty)$	6
الف) $\cos x \neq 0$ $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}\} \quad (k \in \mathbb{Z})$ ب) $2\cos x - 1 \neq 0$ $2\cos x \neq 1$ $\cos x \neq \frac{1}{2}$ $D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{3}\} \quad (k \in \mathbb{Z})$	7
الف) $2x+1 - x+3 \neq 0$ $2x+1 \neq x+3$ $2x+1 = x+3 \rightarrow x=2$ $2x+1 = -(x+3) \rightarrow 3x = -4 \rightarrow x = -\frac{4}{3}$ $D_f = \mathbb{R} - \{\frac{4}{3}, 2\}$ ب) $2x+1 - x+3 \geq 0$ $2x+1 \geq x+3$ $2x+1 \geq x+3 \rightarrow x \geq 2$ $2x+1 \geq -(x+3) \rightarrow 3x \geq -4 \rightarrow x \geq -\frac{4}{3}$ $D_f = [-\frac{4}{3}, \infty)$	8
$\log_a \log_a (2x-1) \geq 0$ $\log_a (2x-1) \geq 1$ $2x-1 \leq a$ $2x \leq a+1$ $x \leq \frac{a+1}{2}$ $D_f = (-\infty, \frac{a+1}{2}]$	9
الف) $2\cos x + 1 > 0 \rightarrow 2\cos x > -1$ $\cos x > -\frac{1}{2}$ $D_f = (2k\pi - \frac{2\pi}{3}, 2k\pi + \frac{2\pi}{3})$ ب) $\log_{10} \frac{x-1}{x+1} \geq 0$ $\frac{x-1}{x+1} \geq 1$ $x-1 \geq x+1 \rightarrow -2 \geq 0$ (خالی) $\frac{x-1}{x+1} \leq 0$ $x-1 \leq 0$ $x \leq 1$ $D_f = (-\infty, 1)$	10

$$^{\text{توان ۲}} \quad 1 - \text{ب) } |2n+1| - |n+3| \geq 0 \rightarrow |2n+1| \geq |n+3| \xrightarrow{\text{توان ۲}} \leq n^2 + 2n + 1 \geq n^2 + 4n + 9 \rightarrow n^2 - 2n - 8 \geq 0$$

$$\frac{-\frac{1}{2} \pm \sqrt{\frac{1}{4} + 8}}{2} \rightarrow D_f = (-\infty, -\frac{1}{2}] \cup [5, +\infty)$$

$$9) \log_{\frac{1}{5}} \log_a^{2n-1} \rightarrow 2n-1 > 0 \rightarrow n > \frac{1}{2}$$

$$\log_a^{2n-1} > 0 \rightarrow 2n-1 > 0 \rightarrow 2n-1 > 1 \rightarrow n > 1$$

$$\log_{\frac{1}{5}} \log_a^{2n-1} \geq 0 \xrightarrow[\text{منتهی در!}]{\text{منتهی در!}} \log_a^{2n-1} \leq \frac{1}{5} \rightarrow \log_a^{2n-1} \leq 1 \rightarrow 2n-1 \leq 5 \rightarrow 2n \leq 6 \rightarrow n \leq 3$$

$$\hookrightarrow D_f = (1, 3]$$