

۱۸/۲۵

$$a=2 \leadsto 2x+b \geq 0$$

$$x=3 \Rightarrow 6+b=0 \leadsto b=-6$$

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$$f-f(2-m^2) \leq 0$$

$$m^2 \leq 1 \leadsto -1 \leq m \leq 1 \quad \left. \begin{array}{l} \\ \end{array} \right\} 1-4(-1)=2$$

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$$\star x \in \mathbb{Z}, \leadsto \frac{-2 \leq x \leq 2}{\text{اعداد صحیح}}$$

$$[x]+[-x]=0$$

$$f(x)=\sqrt{4-x^2} \leadsto 4-x^2 \geq 0 \leadsto -2 \leq x \leq 2$$

۱.۲. اعداد صحیح

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$$\star x \notin \mathbb{Z} \leadsto [x]+[-x]=-1 \leadsto \sqrt{4-x^2}$$

$$\text{الف) } x^3+3x^2 \geq 0 \rightarrow x^2(x+3) \geq 0 \rightarrow x=0/-3$$

$$\begin{array}{c} -3 \quad 0 \quad 3 \\ | \quad + \quad | \quad + \\ - \quad + \quad - \quad + \end{array} \quad D_f = [-3, +\infty)$$

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$$\text{ب) } \sqrt{(x^2-1)(x^3-3x^2)} \rightarrow x=0/3$$

$$\begin{array}{c} -1 \quad 0 \quad 1 \quad 3 \\ | \quad * \quad | \quad * \\ + \quad - \quad - \quad + \end{array}$$

$$D_f = (-\infty, -1] \cup [3, +\infty) \cup \{0\}$$

به ازای $x=0$ عبارت ۰ است پس در دامنه است!

$$\text{الف) } y=\sqrt{|x-2|-3} \leadsto |x-2|-3 \geq 0 \rightarrow |x-2| \geq 3 \leadsto x-2 \geq 3 \rightarrow x \geq 5$$

$$\leadsto D_f = (-\infty, -1] \cup [5, +\infty)$$

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$$\text{ب) } y=\sqrt{4-|x-2|} \leadsto 4-|x-2| \geq 0 \rightarrow |x-2| \leq 4 \rightarrow -4 \leq x-2 \leq 4 \rightarrow -2 \leq x \leq 6$$

$$\leadsto D_f = [-2, 6]$$

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الف) $y = \sqrt{1-x|x|} \geq 0 \rightarrow x|x| \leq 1 \rightarrow \begin{cases} x > 0 \Rightarrow x^2 \leq 1 \rightarrow 0 \leq x \leq 1 \\ x \leq 0 \Rightarrow 1 \leq x^2 \rightarrow (-\infty, -1] \end{cases}$

$D_f = (-\infty, -1] \cup [0, 1]$ (د.م.ه)

(-∞, -1]

1, 2

ب) $\frac{1}{\sqrt{3-|x-\Delta|-1}} \rightarrow \begin{cases} 3-|x-\Delta| \neq 1 \rightarrow x \geq 0 / 3-x+\Delta \neq 1 \rightarrow x \neq 2 \\ x \leq 0 / 3+x-\Delta \neq 1 \rightarrow x \neq 2 \end{cases} \rightarrow D_f = [2, \infty) - \{2\}$

الف) $y = \frac{\sin^2 x - 1}{\cos x} \rightarrow \cos x \neq 0 \Rightarrow D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}$



ب) $y = \frac{\cos x}{\sqrt{\cos x - 1}} \rightarrow \sqrt{\cos x - 1} \neq 0 \rightarrow \cos x \neq 1 \Rightarrow D_f = \mathbb{R} - \{2k\pi\}$

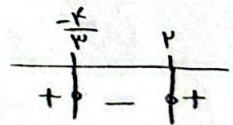


الف) $\frac{x+3}{|x+1|-|x+3|} \rightarrow |x+1| = |x+3| \rightarrow f_x^2 + f_x + 1 = x^2 + 2x + 9 \rightarrow 3x^2 - 2x - 8 = 0$

$\Delta = \frac{2 \pm \sqrt{4+96}}{6} = \frac{2 \pm 10}{6} \Rightarrow x = 2, -\frac{4}{3} \rightarrow D_f = \mathbb{R} - \{2, -\frac{4}{3}\}$

ب) $|x+1| \geq |x+3| \rightarrow f_x^2 + f_x + 1 \geq x^2 + 2x + 9 \rightarrow 3x^2 - 2x - 8 \geq 0$

$D_f = (-\infty, -\frac{4}{3}] \cup [2, +\infty)$



$\log_{\Delta}^{(\log_{\Delta}^{(x-1)})} \geq 0 \rightarrow \begin{cases} \log_{\Delta}^{(x-1)} > 0 \rightarrow x-1 > \Delta \rightarrow x > 1 + \Delta \\ \log_{\Delta}^{(x-1)} \geq 1 \rightarrow x-1 \geq \Delta \rightarrow x \geq 1 + \Delta \end{cases}$

$D_f = (3, \infty)$

دقیقاً متناهی و انت حبت ناصارده مدفن مرسته
(صعب ترین هفتی گذشته!)

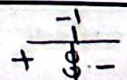
الف) $y = \log(\sqrt{\cos x + 1}) \rightarrow \sqrt{\cos x + 1} > 0 \rightarrow \cos x > -1 \Rightarrow D_f = \mathbb{R} - [2k\pi + \pi, 2k\pi + \frac{3\pi}{2}]$

ب) $y = \sqrt{\log \frac{x-1}{x+1}} \rightarrow \frac{x-1}{x+1} > 0 \rightarrow \begin{cases} x > 1 \\ x < -1 \end{cases}$

$D_f = (-\infty, -1) \cup (1, \infty)$

$\frac{x-1}{x+1} > 1 \rightarrow \frac{(x-1)-(x+1)}{x+1} > 0 \rightarrow \frac{-2}{x+1} > 0 \rightarrow x < -1$

تعیین علامت



ج- ۴) $\frac{(x^2-1)(x^2-x^2)}{(x^2-1)} \geq 0 \rightarrow \frac{(n-1)(n+1)(n^2)(n-1)}{(n-1)(n^2+n+1)} \geq 0$

$D_f = (-\infty, -1] \cup \{0\} \cup [3, +\infty)$

۵۰. ریشه ندارد

Sign chart: $\begin{array}{c|ccccccc} & -1 & 0 & 1 & 3 & & \\ \hline & + & 0 & - & 0 & - & 0 & + \end{array}$

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

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

$\log_a \log_a^{n-1} \geq 0 \xrightarrow[\text{منتهی به صفر!}]{\text{منتهی به صفر!}} \log_a^{n-1} \leq 1 \rightarrow \log_a^{n-1} \leq 1 \rightarrow n-1 \leq 5 \rightarrow n \leq 6 \rightarrow n \leq 3$

$\therefore D_f = (1, 3]$

الف- ۴) $1 - n|n| \geq 0$

$n \geq 0 \rightarrow 1 - n^2 \geq 0 \rightarrow n^2 \leq 1 \rightarrow -1 \leq n \leq 1$

$n \leq 0 \rightarrow 1 + n^2 \geq 0$

همواره مثبت ✓

احتمالاً مرتبه‌ایست مثل تابع را رسم کنیم

$D_f = (-\infty, 1] \leftarrow$