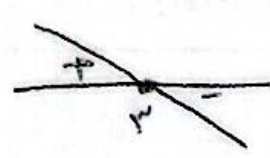


نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۳ ... کلاس: *مجموعه سوال*

$\frac{x+3}{(x-1)(x+3)(2x-1)} \xrightarrow{D_f} \mathbb{R} - \left\{1, -\frac{1}{2}, \frac{1}{2}\right\} \checkmark$	الف) (۲)
$\frac{x+3}{(x+1)(x+3)(2x+1)} \xrightarrow{D_f} \mathbb{R} - \left\{-1, -\frac{1}{2}, \frac{1}{2}\right\} \checkmark$	ب)
$\frac{x+3}{(x-1)(x^2-x+1)} \xrightarrow{D_f} \mathbb{R} - \{1\} \checkmark$ $\Delta < 0$	الف) (۲)
$\sqrt{\frac{x+3}{(x-1)(x^2-x+1)}} \geq 0$ $\Delta < 0 \Rightarrow \text{همیشه مثبت}$ $\begin{array}{c c c} -3 & 1 & \\ \hline + & - & + \end{array}$ $D_f = \mathbb{R} - (-3, 1] \checkmark$	ب)
① $x^2 - 7x + 10 \neq 0 \Rightarrow x \neq \{2, 5\}$ $D_f = I \cap II = \mathbb{R} - \{0, 2, 5\} \checkmark$ ② $x^2 + 3x \neq 0 \Rightarrow x \neq \{0, -3\}$	(۲)
$ 2x+1 \neq x+3 \Rightarrow \begin{cases} x^2 + 4x + 1 \neq x^2 + 6x + 9 \\ 3x^2 - 2x - 1 \neq 0 \end{cases}$ $x^2 - 2x - 2 = 0 \Rightarrow x = \frac{2 \pm \sqrt{4+8}}{2} = \frac{2 \pm 2\sqrt{3}}{2} = 1 \pm \sqrt{3}$ $D_f = \mathbb{R} - \left\{2, \frac{4}{3}\right\} \checkmark$	الف) (۲)
$x^2 + 4x + 1 \geq x^2 + 6x + 9$ $3x^2 - 2x - 1 \geq 0$ $\begin{array}{c c c} -\frac{1}{3} & 2 & \\ \hline + & - & + \end{array} \Rightarrow D_f = \mathbb{R} - \left(-\frac{1}{3}, 2\right) \checkmark$	ب)
① $x > 0$ ② $1 - \log_{\frac{1}{2}} x > 0 \Rightarrow 1 > \log_{\frac{1}{2}} x \Rightarrow 2 > x$ $D_f = I \cap II = (0, 2) \checkmark$	الف) (۲)
① $x > 0$ ② $1 - \log_{\frac{1}{2}} x > 0 \Rightarrow 1 > \log_{\frac{1}{2}} x \Rightarrow \frac{1}{2} < x$ $D_f = I \cap II = \left(\frac{1}{2}, +\infty\right) \checkmark$	ب)

$\sqrt{\log_{\frac{1}{2}} \log_2(x-1)}$ (I) $x-1 > 0 \quad x > \frac{1}{2}$ (II) $\log_2(x-1) > 0 \quad x-1 > 1 \quad x > 2$ (III) $\log_{\frac{1}{2}} \log_2(x-1) \geq 0 \quad \log_2(x-1) \leq 1 \quad x-1 \leq 2 \quad x \leq 3$ $D_f = I \cap II \cap III = (1, 3]$	2 6
$x \cos x + 1 > 0 \quad \cos x > -\frac{1}{x}$ $D_f = (2k\pi - \frac{\pi}{2}, 2k\pi + \frac{\pi}{2})$	الف 2 7
(I) $x \neq -1$ (II) $\frac{x-1}{x+1} > 0 \Rightarrow x \in \mathbb{R} - [-1, 0]$ (III) $\log_{\frac{x-1}{x+1}} > 0 \quad D_f = I \cap II \cap III = (-\infty, -1)$ $\frac{x-1}{x+1} > 1 \Rightarrow \frac{x-1-x-1}{x+1} > 0 \Rightarrow \frac{-2}{x+1} > 0 \Rightarrow x < -1$	2 7
 $a + r = 0 \Rightarrow a = -r$ $f(x) = \sqrt{-2x + b}$ $\sqrt{-2x + b} = a \Rightarrow (b = 4)$	2 8
$a > 0 \checkmark$ $\Delta \leq 0$ $\Delta \leq 0 \quad x \leq x(1-m) \Rightarrow 0 \leq -m^2 + 1 \Rightarrow m^2 \leq 1 \Rightarrow -1 \leq m \leq 1$ $1 - (-1) = 2$	2 9
$\sqrt{4-x^2}$ $\frac{[x] + [-x] + 1}{x} \rightarrow x \in \mathbb{Z}$ $-2, -1, 0, 1, 2$	2 10