۱۷/۷۵

نام و نام خانوادگی .... پاسخنامه تشریحی تکلیف شماره .... کلاس ....

۱ (۲)

الف) $\frac{x+3}{(x+3)(x-1)(2x-1)}$ $D_f = \mathbb{R} - \{-3, 1, \frac{1}{2}\}$ ✓

ب) $\frac{x+3}{(x+3)(x+1)(2x+1)}$ $D_f = \mathbb{R} - \{-3, -1, -\frac{1}{2}\}$ ✓

۲ (۲)

الف) $\frac{x+3}{(x-1)(x^2-x+1)}$ $\Delta = b^2 - 4ac$ $1-4=-3$ ✗

$D_f = \mathbb{R} - [1]$ ✓

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

-3		1	
$+$	0 $-$	∄	$+$

$D_f = \mathbb{R} - (-3, 1]$ ✓

۳ (۲)

$x^2 - 5|x-1| - 2x + 5$

$x \geq 1$: $x^2 - 5x + 5 - 2x + 5 \neq 0$ (I)

$x < 1$: $x^2 + 5x - 5 - 2x + 5 \neq 0$ (II)

(I) $x^2 - 7x + 10 \neq 0$ $\Delta = b^2 - 4ac \Rightarrow 49 - 40 = 9$ $\frac{7 \pm \sqrt{9}}{2}$ → 5, 2

(II) $x^2 + 3x \neq 0$ $x(x+3) \neq 0$ → -3, 0

$D_f = \mathbb{R} - \{-3, 0, 2, 5\}$ ✓

۴ (۲)

الف) $|2x+1| - |x+3| \neq 0$ $|2x+1| \neq |x+3| \xrightarrow{\text{توان ۲}} 4x^2 + 1 + 4x \neq x^2 + 9 + 6x$

$3x^2 - 2x - 8 \neq 0$ $\Delta = b^2 - 4ac$ $4 + 96 = 100$ $\frac{2 \pm \sqrt{100}}{6}$ → 2, $-\frac{8}{6}$

$D_f = \mathbb{R} - \{2, -\frac{8}{6}\}$ ✓

$|2x+1| \geq |x+3| \xrightarrow{\text{توان ۲}} 4x^2 + 1 + 4x \geq x^2 + 9 + 6x$

ب) $|2x+1| - |x+3| \geq 0$ $3x^2 - 2x - 8 \geq 0$ $\Delta = b^2 - 4ac$ $\frac{2 \pm \sqrt{100}}{6}$ → 2, $-\frac{8}{6}$

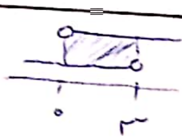
$-\frac{8}{6}$		2	
$+$	$-$		$+$

$D_f = \mathbb{R} - (-\frac{8}{6}, 2)$ ✓

۵ (۲)

الف) $1 - \log_2 x > 0$ $1 > \log_2 x$ $2 > x$

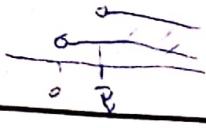
$x > 0$



$D_f = (0, 2)$ ✓

ب) $1 - \log_{\frac{1}{2}} x > 0$ $1 > \log_{\frac{1}{2}} x$ $\frac{1}{2} < x$

$x > 0$



$D_f = (\frac{1}{2}, \infty)$ ✓

Scanned with CamScanner

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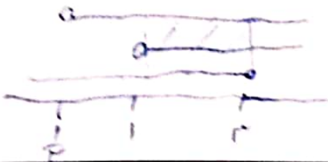
$2x-1>0 \quad 2x>1 \quad x>\frac{1}{2} \qquad \log_5^{2x-1}>0 \quad 2x-1>1 \quad 2x>2 \quad x>1$

$\log_{\frac{1}{2}} \log_5^{2x-1} \geq 0 \qquad \log_5^{2x-1} \leq (\frac{1}{2})^0 \qquad 2x-1 \leq 5 \quad 2x \leq 6 \quad x \leq 3$



$D_f=(1,3]$

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الف) $2\cos x+1>0 \quad 2\cos x>-1 \quad \cos x>-\frac{1}{2}$

$D_f=$ ~~$(2k\pi+\frac{7\pi}{6}, 2k\pi+\frac{5\pi}{6})$~~ $(2k\pi-\frac{2\pi}{3}, 2k\pi+\frac{2\pi}{3})$

ب) $\frac{x-1}{x+1}>0 \qquad \log_2 \frac{x-1}{x+1} \geq 0 \qquad \frac{x-1}{x+1} \geq 1 \qquad x-1 \geq x+1$ ✗ $D_f=\emptyset$

$-1 \quad 1$: $+ \mid - \mid +$ $\qquad x<-1 \rightarrow D=(-\infty,-1)$

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$a<-2$ ✗ $\quad a=2 \qquad -2x+b \geq 0 \qquad -2b \geq -b$

$a=-2 \rightarrow$ معادله خط $(-\infty, \frac{b}{2}] \Rightarrow \frac{b}{2}=2 \quad b=4$

$a>-2 \qquad \Delta=a^2-4(a+2)b=0$

$(a+1)x^2+ax+b=0$

$9a+18+3a+b=0 \Rightarrow b=-12a-18$

$a=\frac{-168 \pm \sqrt{168^2-4(49)(144)}}{2(49)}$

$a=\frac{-168}{98}=-\frac{12}{7} \qquad -12(-\frac{12}{7})-18=b=\frac{144}{7}-18=\frac{18}{7}$

$a>-2 \rightarrow b=\frac{18}{7}$
$a=2 \rightarrow b=42$

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$\Delta=2^2-4(1)(2-x^2)=4-8+4x^2=4x^2-4$

$\Delta \leq 0 \quad 4x^2-4 \leq 0 \quad 4x^2 \leq 4 \quad x^2 \leq 1 \quad -1 \leq x \leq 1$

$1-(-1)=2$

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$4-x^2 \geq 0 \quad 4 \geq x^2 \quad -2 \leq x \leq 2$ (I)

$x \in Z \rightarrow [x]+[-x]+1=1$ (II) $\qquad x \notin Z \rightarrow [x]+[-x]+1=0$ ✗

$I \cup II=\{-2,-1,0,1,2\} \rightarrow n=5$