نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۳ کلاس .....

۱

الف) $y=\frac{x+3}{2x^3+3x^2-8x+3}$

$D_f=\mathbb{R}-\{-3,\frac{1}{2},1\}$

$2x^3+3x^2-8x+3 \mid x-1 \to 1$

$-2x^3-2x^2$

$5x^2-8x+3$

$-5x^2-5x$

$-3x+3$

$-3x+3$

$2x^2+5x-3 \to (x+3)(x-1) \to \frac{1}{2},-3$

ب) $y=\frac{x+3}{4x^4+9x^2+6x+3}$

$4x^4+9x^2+6x+3 \mid x+1 \to -1$

$-2x^4+2x^2$

$7x^2+6x+3$

$-7x^2+7x$

$3x+3$

$-3x+3$

$2x^2+7x+3 \to (x+3)(x+1) \to -3,-\frac{1}{2}$

$D_f=\mathbb{R}-\{-3,-\frac{1}{2},-1\}$

۲

الف) $y=\frac{x+3}{x^3-2x^2+2x-1}$

$x^3-2x^2+2x-1 \mid x-1 \to 1$

$-x^3+x^2$

$-x^2+2x-1$

$+x^2-x$

$x-1$

$x-1$

x^2-x+1

$\Delta<0$ ✗ بق

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

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

$x+3 \to -3$

$x^3-2x^2+2x-1 \to 1$

	-3		1	
	+	0	−	+

$D_f=(-\infty,-3]\cup(1,+\infty)$

۳

$y=\frac{2}{x^2-3|x-1|-2x+3}$

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

$x<1$

$x^2+3x-3-2x+3=0$

$x^2+3x \to x(x+3)=0$

$x=0,-3$

$x=1$

x^2-2x+3 ✗ بق

$x>1$

$x^2-3x+3-2x+3$

$x^2-5x+6 \to (x-3)(x-2)$

$x=+2,+3$

۴

الف) $y=\frac{x+3}{|2x+1|-|x+3|}$

$D_f=\mathbb{R}-\{-3,-\frac{1}{2},2\}$

-3 | $-\frac{1}{2}$

$-2x-1+x+3$ | $-2x-1-x-3$ | $2x+1-x-3$

$-x+2$ | $-3x-4$ | $x-2$

2 ✗ | $-\frac{4}{3}$ ✓ | 2 ✓

ب) $y=\sqrt{|2x+1|-|x+3|}$

	$-\frac{4}{3}$		2	
	+	0	−	0

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

۵

الف) $y=\log_2^{(1-\log_3 x)}$

$1-\log x>0 \to 1>\log_3^x \to x<3$

$x>0$

$D_f=(0,3)$

ب) $y=\log_2^{(1-\log_{\frac{1}{2}} x)}$

$x>0$

$1-\log_{\frac{1}{2}}^x>0 \to 1>\log_{\frac{1}{2}}^x$

$x>\frac{1}{2}$

$D_f=(\frac{1}{2},+\infty)$

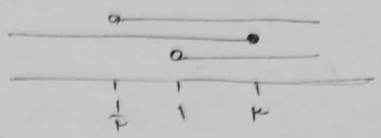
$y = \sqrt{\log_{\frac{1}{2}} \log_5^{(2x-1)}}$

$2x-1 > 0$
$2x > 1$
$x > \frac{1}{2}$

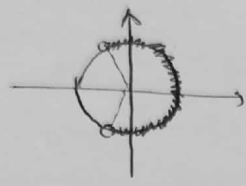
$\log_5^{2x-1} > 0$
$2x-1 > 1$
$2x > 2$
$x > 1$

$\log_{0.5} \log_5^{2x-1} \geq 0$
$\log_5^{2x-1} \leq 1$
$2x-1 \leq 5 \rightarrow 2x \leq 6 \rightarrow x \leq 3$

$D_f = (1, 3]$



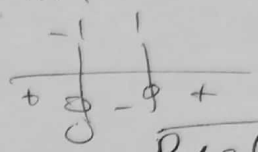
الف)
$y = \log(2\cos x + 1)$
$2\cos x + 1 > 0$
$2\cos x > -1$
$\cos x > -\frac{1}{2}$



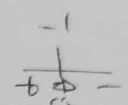
$D_f = (2k\pi - \frac{2\pi}{3}, 2k\pi + \frac{2\pi}{3})$

$y = \sqrt{\log \frac{x-1}{x+1}}$

$\frac{x-1}{x+1} > 0$



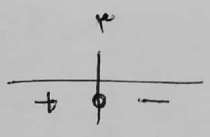
$\log \frac{x-1}{x+1} \geq 0$
$\frac{x-1}{x+1} \geq 1 \rightarrow \frac{-2}{x+1} \geq 0$



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

$f(x) = \sqrt{(a+2)x^2 + ax + b}$

$a+2 = 0$
$a = -2$ $\rightarrow \sqrt{ax+b}$



$a(2) + b = 0$
$-4 + b = 0 \rightarrow b = 4$

$f(x) = \sqrt{x^2 + 2x + 2 - m^2}$

$(x+1)^2 = x^2 + 2x + 1 \quad +1 - m^2$
$m^2 \geq 1$
$m \geq \pm 1$
$+1 - (-1) = 2$

$\Delta \leq 0 \rightarrow b^2 - 4ac \leq 0$
$a > 0$ ✓
$4 - 4(2m - m^2) \leq 0$
$4 - 8 + 4m^2$
$1 - 2 + m^2 \leq 0$
$m^2 \leq 1$
$-1 \leq m \leq 1$

$f(x) = \frac{\sqrt{4 - x^2}}{[x] + [-x] + 1}$ $\rightarrow 4 - x^2 \geq 0$

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

$[x] + [-x] + 1 \neq 1 \rightarrow x \in \mathbb{Z}$

$D_f = \{-2, -1, 0, 1, 2\}$

تعداد عضو