نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۶ ..... کلاس .....

۱

ب) $y=\frac{x+3}{3x^3-x^2-8x-4}$

$3-8=-4-1 \Rightarrow 3x^3-x^2-8x-4 \div (x+1) =$

$3x^2-4x-4 \rightarrow x^2-4x-12$

$\rightarrow (x-6)(x+2)$ $x \neq 2, -1, -\frac{2}{3}$

$D: R-\{-1, -\frac{2}{3}, 2\}$

الف) $y=\frac{x+4}{4x^3-20x^2+31x-15} =$

$4-20+31-15=0$

$(4x^3-20x^2+31x-15) \div (x-1) =$

$4x^2-16x+15 \rightarrow x^2-4x+\frac{15}{4}$

$(x-\frac{1}{2})(x-\frac{15}{2}) \rightarrow x \neq 1, \frac{1}{2}, \frac{15}{2}$

$D: R-\{1, \frac{1}{2}, \frac{15}{2}\}$

۲

ب) $y=\frac{x+2}{x-\sqrt{3x-2}}$

$x-\sqrt{3x-2} \neq 0$ $x \neq \sqrt{3x-2}$

$x^2-3x+2 \neq 0$ $(x-1)(x-2) \neq 0$ $x \neq 1, 2$ ✓

$3x-2 \geqslant 0$ $3x \geqslant 2$ $x \geqslant \frac{2}{3}$

$D=[\frac{2}{3}, +\infty)-\{1, 2\}$

الف) $y=\frac{x+1}{x-\sqrt{2-2x}}$ جواب غیر ریشه ۳-

$x-\sqrt{2-2x} \neq 0$ $x \neq \sqrt{2-2x}$

$x^2 \neq 2-2x$ $x^2+2x-2 \neq 0$

$(x+3)(x-1) \neq 0$ $x \neq -3, 1$

$D=(-\infty, \frac{2}{3}]-\{1\}$ $2-2x \geqslant 0$ $x \leqslant \frac{2}{3}$

۳

ب) $y=\frac{\cos x+1}{2\sin x+1}$ $2\sin x+1 \neq 0$

$\sin x \neq -\frac{1}{2}$ $2\sin x \neq -1$

$D=R-\{2k\pi-\frac{\pi}{6}, 2k\pi+\frac{7\pi}{6}\}$

الف) $y=\frac{\sin x}{2\cos x-1}$ $2\cos x \neq 1$

$\cos x \neq \frac{1}{2}$

$D: R-\{2k\pi+\frac{\pi}{3}, 2k\pi-\frac{\pi}{3}\}$

د) $y=\frac{\sin x+1}{4\sin^2 x-3}$ $4\sin^2 x-3 \neq 0$

$\sin^2 x \neq \frac{3}{4}$ $\sin x \neq \pm\frac{\sqrt{3}}{2}$

$D: R-\{k\pi+\frac{\pi}{3}, k\pi+2\frac{\pi}{3}\}$

ج) $y=\frac{\tan x+2}{\cot x-1}$ $\cot x-1 \neq 0$

$\cot x \neq 1$

$D=R-\{\frac{k\pi}{2}, k\pi+\frac{\pi}{4}\}$

۴

ب) $x^2-6x+5<0$ $\frac{1 \quad 5}{+\phi - \phi +}$

$(x-1)(x-5)<0$

$D=(1,5)$

الف) $x^2-5x+4>0$ $\frac{1 \quad 4}{+\phi - \phi +}$

$(x-1)(x-4)>0$

$D=(-\infty, 1) \cup (4, +\infty)$

د) $x^2-7x+4 \leqslant 0$ $\frac{1 \quad 4}{+\phi - \phi +}$

$(x-1)(x-4) \leqslant 0$

$D=[1,4]$

ج) $x^2+6x+5 \geqslant 0$ $\frac{-5 \quad -1}{+\phi - \phi +}$

$(x+1)(x+5) \geqslant 0$

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

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ب) $\frac{x^2-1}{x^2-6x+5} \geqslant 0$ $\frac{-1 \quad +1 \quad 5}{+\phi - \phi - \phi +}$

$\frac{(x-1)(x+1)}{(x-1)(x-5)} \geqslant 0$

$D=(-\infty, -1] \cup (5, +\infty)$

الف) $\frac{x^2-3x+2}{x-5}<0$ $\frac{1 \quad 2 \quad 5}{-\phi + \phi - \phi +}$

$\frac{(x-1)(x-2)}{x-5}<0$

$D=(-\infty, 1) \cup (2, 5)$

۶

الف) $\sqrt{\frac{x^2-4x+3}{x^3-1}}$

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

	1	3
	− ∄	− 0 +

$D = [3, +\infty)$

ب) $\sqrt[3]{\frac{x^2-4x+3}{x^2-1}}$ $\quad x^2-1 \neq 0$

$x^2 \neq 1 \quad x \neq \pm 1$

$D = R - \{-1, +1\}$

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الف) $y = \log(x^2-3x)$

$x^2-3x > 0 \quad x(x-3) > 0$

	0	3
	+ 0 −	0 +

$D = (-\infty, 0) \cup (3, +\infty)$

ب) $y = \log_{|x|-2}(4-x^2) \quad 4-x^2 > 0$

$|x|-2 \neq 1 \quad |x|-2 > 0 \quad |x| > 2$

$|x| \neq 3 \quad x > 2 \cup x < -2$

$4 > x^2 \quad -4 < x < 4$

$D = (-4, -2) \cup (2, 4) - \{-3, 3\}$

ج) $\log_{10-x} \frac{x^2-7x+12}{x-3} \quad \frac{(x-3)(x-4)}{x-3} > 0$

	3	4
	− ∄	− 0 +

$10-x \neq 1 \quad x \neq 9 \quad 10-x > 0 \quad 10 > x$

$D = (3, 10) - \{9\}$

د) $y = \sqrt{x^2-11x+28} + \log_x \sqrt{24-x^2}$

$x > 0 \quad x \neq 1 \quad 24-x^2 > 0 \quad -2\sqrt{6} < x < 2\sqrt{6}$

	4	7
	+ 0 −	0 +

$x^2-11x+28 \geq 0 \quad (x-4)(x-7) \geq 0 \quad D = (0, 4] - \{1\}$

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

	−1	0	+1
	+ ∄ −	∄ −	0 +

	−1	0	+1	
x^2-x	+	+	0 −	0 +
x^2+x	+ ∄	− ∄	+	+
	+ ∄	− ∄	− 0	+

۹

$y = \sqrt{\frac{x-f(x)}{f(x)}} \quad f(x) \neq 0 \quad x \neq -2, +2$

$x - f(x) = 0 \quad x = f(x)$

$x = -1, +3$

$\frac{x-f(x)}{f(x)} \geq 0$

	−2	−1	2	3
	− ∄	+ 0	− ∄	+ 0 −

$D = (-2, -1] \cup (2, 3]$

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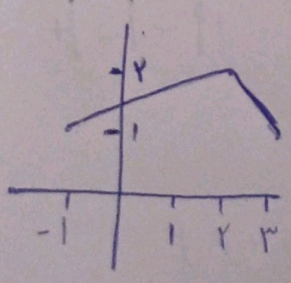
الف)



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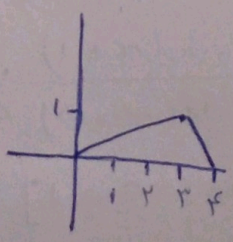

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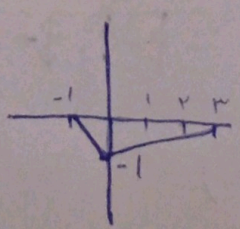

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