ز) $\frac{x+2}{4x^3-20x^2+21x-10}$

$4x^3-20x^2+21x-10 \mid x-1$

$-4x^3+4x^2$ — $4x^2-16x+10$

$-16x^2+21x-10$

$+16x^2-16x$

$5x-10$

$-5x+10$

0

$D_f = R-\{1, \frac{5}{4}, \frac{5}{2}\}$

ح) $\frac{x+2}{(4x-5)(2x-2)(x-1)}$

ط) $\frac{x+2}{3x^3-x^2-8x-4}$

$3x^3-x^2-8x-4 \mid 3x+1$

$-3x^3-x^2$ — x^2-4x-4

$-4x^2-8x-4$

$+4x^2+4x$

$-4x-4$

$+4x+4$

0

$x^2-4x-12$

$D_f = R-\{\frac{-1}{3}, 4, -1\}$

ى) $\frac{x+3}{(3x+2)(x-2)(x+1)}$

ك) $\frac{x+1}{x-\sqrt{2-2x}}$

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

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

$x^2 \neq 2-2x$

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

$2-2x \geq 0$

$2 \geq 2x$

$\frac{2}{2} \geq x$

$(x+2)(x-1) \neq 0$

$D_f = (-\infty, \frac{2}{2}] - \{1\}$.

ل) $\frac{x-2}{x-\sqrt{2x-2}}$

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

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

$x^2 \neq 2x-2$

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

$2x-2 \geq 0$

$2x \geq 2$

$x \geq \frac{2}{2}$

$(x-1)(x-2) \neq 0$

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

م) $\frac{\sin x}{2\cos x-1}$

$2\cos x-1 \neq 0$

$2\cos x \neq 1$

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

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

ن) $\frac{\cos x+1}{2\sin x+1}$

$2\sin x+1 \neq 0$

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

$D_f = R-\{2k\pi-\frac{\pi}{6}, 2k\pi-\frac{5\pi}{6}\}$

س) $\frac{\tan x+2}{\cot x-1}$

$\cos x \neq 0$

$\cot x-1 \neq 0$

$\cot x \neq 1$

$\sin x \neq 0$

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

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

$D = R-\{k\pi\}$

ع) $\frac{\sin x+1}{2\sin^2 x-2}$

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

$\sin^2 x \neq \frac{4}{2}$

$\sin x \neq \pm\frac{\sqrt{2}}{2}$

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

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

ف) $y = x^2-5x+6 > 0$ $(x-2)(x-3) > 0$

	2	3	
+	0	−	0	+

$D_f = (-\infty, 2) \cup (3, +\infty)$

ص) $y = x^2-6x+5 < 0$ $(x-1)(x-5) < 0$

	1	5	
+	0	−	0	+

$D_f = (1, 5)$

ق) $y = x^2+6x+5 \geq 0$ $(x+1)(x+5) \geq 0$

	-5	-1	
+	0	−	0	+

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

ر) $y = x^2-7x+6 \leq 0$ $(x-1)(x-6) \leq 0$

	1	6	
+	0	−	0	+

$D_f = [1, 6]$

ش) $\frac{x^2-3x+2}{x-5} < 0$ $\frac{(x-1)(x-2)}{x-5} < 0$

	1	2	5	
−	0	+	0	−	+

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

ت) $\frac{x^2-1}{x^2-6x+5} \geq 0$ $\frac{(x-1)(x+1)}{(x-1)(x-5)} \geq 0$

	-1	1	5	
+	0	−	*	−	+

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

$y=\sqrt{\frac{x^2-4x+3}{x^2-1}} \Rightarrow y=\sqrt{\frac{(x-1)(x-3)}{x^2-1}}$ $\quad \frac{(x-1)(x-3)}{x^2-1}\geq 0$

	-1	1	3
	+	-	+

$D_f=[3,+\infty)$

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

	-1	1
	+	-

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

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

	0	3
	+	-

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

$y=\log\frac{14-x^2}{|x|-2}$ $\quad 14-x^2>0$ $\quad |x|-2>0$ $\quad |x|-2\neq 1$ $\quad x^2<14$ $\quad |x|>2$ $\quad |x|\neq 3$

$x>-4$, $x<-2$, $x>2$, $x\neq 3$, $x\neq -3$

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

$y=\log\frac{x^2-7x+12}{x-2}$ $\quad \frac{x^2-7x+12}{x-2}>0$ $\quad \frac{(x-3)(x-4)}{x-2}$

	2	3	4
	-	+	-

$10-x>0$ $\quad 10>x$

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

$D_f=(2,3)\cup(4,10)-\{9\}$

$y=\sqrt{x^2-11x+28}+\log_x\sqrt{8-2x^2}$ $\quad (x-4)(x-7)\geq 0$ $\quad \sqrt{8-2x^2}>0$ $\quad 8-2x^2\geq 0$ $\quad x^2\leq 4$ $\quad -2\leq x\leq 2$ $\quad x>0$ $\quad x\neq 1$

	4	7
	+	-

$D_f=(0,1)\cup[7,+\infty)$

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

	-1	0	1
x^2-x	+	+	-
x^2+2x	+	-	+
$D(x)$	+	-	+

$D_f=(-2,0)\cup[1,+\infty)$

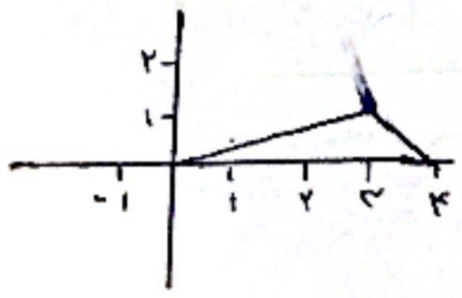
$\sqrt{\frac{x-f(x)}{f(x)}} \Rightarrow$

	-2	-1	2	3
	-	+	-	+

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

الف

ب



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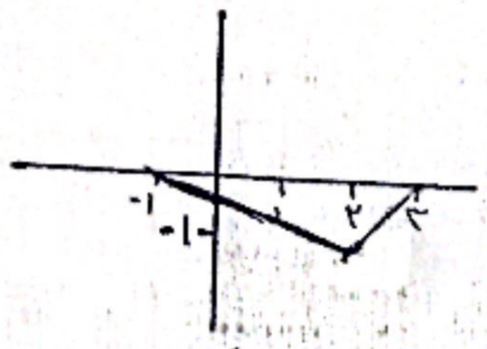

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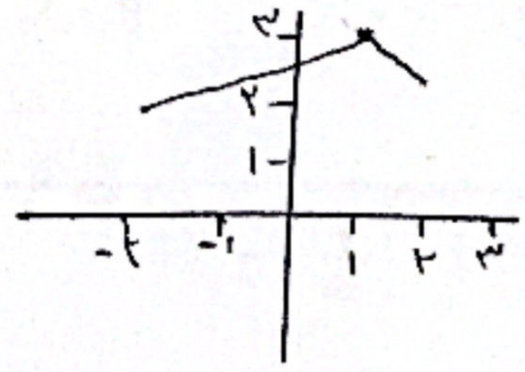

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