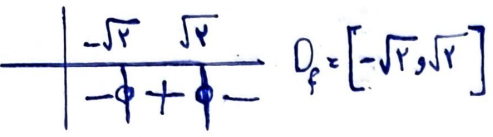
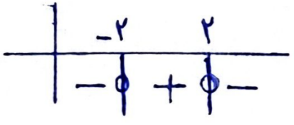


الف) $f(x)+2$		ب) $2f(x)$		1
ج) $f(x-1)$		د) $-f(x)$		1
الف) $x^2-5x+2 > 0$ $(x-2)(x-3) > 0$		ب) $x^2-4x+5 < 0$ $(x-5)(x-1) < 0$		2
ج) $x^2+4x+5 \geq 0$ $(x+5)(x+1) \geq 0$		د) $x^2-11x+4 \leq 0$ $(x-4)(x-1) \leq 0$		2
الف) $\frac{x^3-3x+2}{x-5} < 0$ $\frac{(x-2)(x-1)}{x-5} < 0$		ب) $\frac{x^3-1}{x^2-4x+5} \geq 0$ $\frac{(x-1)(x+1)}{(x-5)(x-1)} \geq 0$		3
الف) $y = \sqrt{\frac{x^3-1}{x^3-x}} \rightarrow \frac{x^3-1}{x^3-x} \geq 0 \rightarrow \frac{(x-1)(x^2+x+1)}{x(x-1)(x+1)} \geq 0$		ب) $y = \sqrt{\frac{x^2-14}{x^2-5x+4}} \rightarrow \frac{x^2-14}{x^2-5x+4} \geq 0$ $\frac{(x-4)(x+4)}{(x-4)(x-1)} \geq 0$		4
الف) $y = \sqrt{4-\sqrt{2-x}}$ $2-x \geq 0 \Rightarrow x \leq 2$ $4-\sqrt{2-x} \geq 0 \Rightarrow \sqrt{2-x} \leq 4 \Rightarrow 2-x \leq 14$ $\Rightarrow x \geq -12$	$\Rightarrow -12 \leq x \leq 2 \rightarrow D_f = [-12, 2]$	ب) $y = \sqrt{3-\sqrt{x-2}}$ $x-2 \geq 0 \Rightarrow x \geq 2$ $3-\sqrt{x-2} \geq 0 \Rightarrow \sqrt{x-2} \leq 3 \Rightarrow x-2 \leq 9$ $\Rightarrow x \leq 11$	$\Rightarrow 2 \leq x \leq 11 \Rightarrow D_f = [2, 11]$	5

الف) $y = \sqrt{4-2x^2} \rightarrow 4-2x^2 \geq 0 \Rightarrow 2(2-x^2) \geq 0$ $\rightarrow 2(\sqrt{2}-x)(\sqrt{2}+x) \geq 0$  $D_f = [-\sqrt{2}, \sqrt{2}]$ (۲) ✓	ب) $y = \sqrt{3 x -9} \rightarrow 3 x -9 \geq 0$ $\Rightarrow 3(x -3) \geq 0$  $D_f = (-\infty, -3] \cup [3, +\infty)$	۶
الف) $y = \sqrt[3]{\frac{ x +1}{ x -3}}$ تنها شرط این است که مخرج صفر نشود. زیرا فرضیه فرد است. $D_f = \mathbb{R} - \{-3, 3\}$ (۲) ✓	ب) $y = \sqrt[3]{\frac{\sqrt{x}+1}{\sqrt{x}-3}}$ $x \geq 0$ (I) $\sqrt{x}-3 \neq 0 \Rightarrow \sqrt{x} \neq 3 \Rightarrow x \neq 9$ (II) $\Rightarrow D_f = [0, +\infty) - \{9\}$	۷
الف) $y = \frac{\sin x}{2\cos x - 1}$ $2\cos x - 1 \neq 0$ $\Rightarrow \cos x \neq \frac{1}{2}$  $D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}\}$	ب) $y = \frac{\cos x + 1}{2\sin x + 1}$ $2\sin x + 1 \neq 0$ $\Rightarrow \sin x \neq -\frac{1}{2}$  $D_f = \mathbb{R} - \{2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6}\}$	۸
ج) $y = \frac{\tan x + 2}{\cot x - 1}$ $\cos x \neq 0$ $\sin x \neq 0$ $\cot x \neq 1$  $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{4}, k\pi + \frac{5\pi}{4}\}$ (۱، ۷، ۵)	د) $y = \frac{\sin x + 1}{2\sin^2 x - 3}$ $2\sin^2 x - 3 \neq 0$ $\Rightarrow \sin x \neq \pm \frac{\sqrt{3}}{2}$  $D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{3}, 2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3}, 2k\pi + \frac{5\pi}{3}\}$	۹
$y = \frac{1}{\sqrt{2 x-2 -\frac{1}{2}}}$ $\rightarrow 2 x-2 - \frac{1}{2} > 0 \Rightarrow 2 x-2 > \frac{1}{2} \Rightarrow x-2 > \frac{1}{4}$ $\begin{cases} x-2 > \frac{1}{4} \rightarrow x > \frac{9}{4} \text{ (I)} \\ x-2 < -\frac{1}{4} \rightarrow x < \frac{7}{4} \text{ (II)} \end{cases}$ <u>(I) و (II)</u> $\Rightarrow D_f = (-\infty, \frac{7}{4}) \cup (\frac{9}{4}, +\infty)$ (۲) ✓		۹
الف) $y = \sqrt{4-2 x } \rightarrow 4-2 x \geq 0$ $\Rightarrow 2(2- x) \geq 0$  $D_f = [-2, 2]$ (۲) ✓	ب) $y = \sqrt{\frac{ x }{ x }}$ کسر همواره نامنفی است و تنها شرط صفر نشدن مخرج است. $D_f = \mathbb{R} - \{0\}$ ⊕ ✓ ⊙ ✗ ⊖ ✓	۱۰