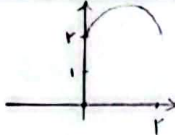
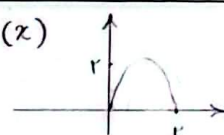
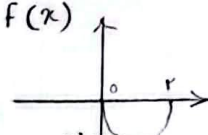
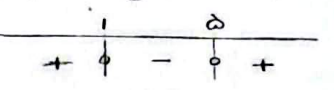
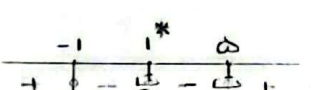
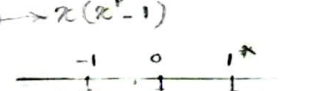
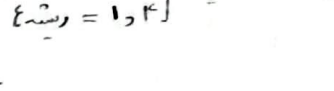
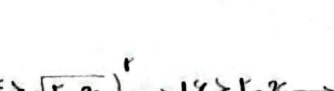
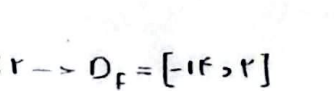


الف) $f(x) + 2$  ج) $f(x-1)$ 	ب) $2f(x)$  د) $-f(x)$ 	1
الف) $x^2 - 5x + 4 > 0$ پاسخ: $(-\infty, 2) \cup (3, +\infty)$ $(x-2)(x-3) = 0$  ریشه ها: 2, 3	ب) $x^2 - 4x + 5 < 0$ پاسخ: $(1, 5)$ $(x-1)(x-5) = 0$  ریشه ها: 1, 5	2
ج) $x^2 + 4x + 5 > 0$ پاسخ: $(-\infty, -5) \cup (-1, +\infty)$ $(x+1)(x+5) = 0$  $x = -5, -1$	د) $x^2 - 7x + 4 \leq 0$ پاسخ: $[1, 4]$ $(x-1)(x-4) = 0$  $x = 1, 4$	3
الف) $\frac{x^2 - 3x + 2}{x - 5} < 0$ ریشه ها: 1, 2, 5  پاسخ: $(-\infty, 1) \cup (2, 5)$	ب) $\frac{x^2 - 1}{x^2 - 4x + 5} \geq 0$ ریشه ها: 1, 5  پاسخ: $(-\infty, -1] \cup (5, +\infty)$	4
الف) $y = \sqrt{x^2 - 1}$ $\rightarrow x = 1$ $\sqrt{x^2 - x} \rightarrow x(x-1)$ ریشه ها: -1, 0, 1*  $D_f = (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$	ب) $\sqrt{x^2 - 14}$ ریشه ها: $\pm \sqrt{14}$ $\sqrt{x^2 - 5x + 4} \rightarrow \text{ریشه ها: } 1, 4$  $D_f = (-\infty, -\sqrt{14}] \cup (\sqrt{14}, +\infty)$	5

الف) $y = \sqrt{4 - 2x^2}$ $4 - 2x^2 \geq 0 \rightarrow 4 \geq 2x^2 \rightarrow x^2 \leq 2 \rightarrow -\sqrt{2} \leq x \leq \sqrt{2} \rightarrow D_f = [-\sqrt{2}, \sqrt{2}]$	٤
ب) $y = \sqrt{3 x - 9}$ $3 x - 9 \geq 0 \rightarrow 3 x \geq 9 \rightarrow x \geq 3 \rightarrow x \geq 3, x \leq -3 \rightarrow D_f = (-\infty, -3] \cup [3, +\infty)$	٥
الف) $y = \sqrt[3]{\frac{ x +1}{ x -3}}$ $x \neq 3 \rightarrow x \neq \pm 3 \rightarrow D_f = \mathbb{R} - \{\pm 3\}$ ب) $y = \sqrt[3]{\frac{\sqrt{x}+1}{\sqrt{x}-3}}$ $x \geq 0$ $(\sqrt{x} \neq 3) \rightarrow x \neq 9$ $\rightarrow D_f = [0, 9) \cup (9, +\infty)$	٦
الف) $y = \frac{\sin x}{r \cos x - 1}$ $r \cos x \neq 1$ $\cos x \neq \frac{1}{r} \rightarrow$ $x \neq 0^\circ, 360^\circ$ $D_f = \mathbb{R} - \{rk\pi \pm \frac{\pi}{r}\}$ ب) $y = \frac{\cos x + 1}{r \sin x + 1}$ $r \sin x \neq -1$ $\sin x \neq -\frac{1}{r}$ $x \neq 180^\circ, 360^\circ$ $D_f = \mathbb{R} - \{rk\pi - \frac{\pi}{r}, rk\pi + \frac{\pi}{r}\}$	٧
ج) $y = \frac{\tan x + r}{\cot x - 1}$ $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{r}, k\pi\}$ $\cot x \neq 1 \rightarrow x \neq 45^\circ, 225^\circ$ $\cos x \neq 0 \rightarrow x \neq 90^\circ, 270^\circ$ $\sin x \neq 0 \rightarrow x \neq 0^\circ, 180^\circ, 360^\circ$ د) $y = \frac{\sin x + 1}{r \sin^2 x - 3}$ $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{r}, k\pi + \frac{\pi}{r}\}$ $r \sin^2 x \neq 3 \rightarrow \sin x \neq \pm \frac{\sqrt{3}}{r}$ $x \neq 60^\circ, 120^\circ, 240^\circ, 300^\circ$	٨
$y = \frac{1}{\sqrt{r x-2 - \frac{1}{r}}}$ $r x-2 - \frac{1}{r} > 0$ $r x-2 > \frac{1}{r}$ $x-2 > \frac{1}{r^2} \rightarrow x-2 > \frac{1}{r^2} \rightarrow x > \frac{4}{r^2}$ $x-2 < -\frac{1}{r^2} \rightarrow x < \frac{4}{r^2}$ $\rightarrow D_f = (-\infty, \frac{4}{r^2}) \cup (\frac{4}{r^2}, +\infty)$	٩
الف) $y = \sqrt{4 - 2 x }$ $4 - 2 x \geq 0 \rightarrow 4 \geq 2 x \rightarrow 2 \geq x \rightarrow -2 \leq x \leq 2 \rightarrow D_f = [-2, 2]$ ب) $y = \sqrt{\frac{ x }{ x }}$ $D_f = \mathbb{R} - \{0\}$ $x \neq 0$ نقطة ٠* نقطة ٠*	١٠