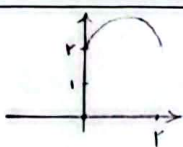
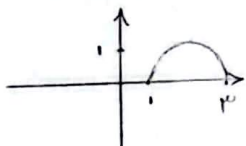
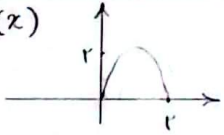
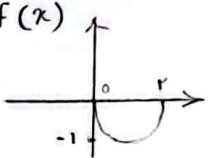
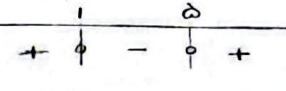
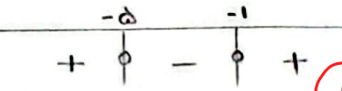
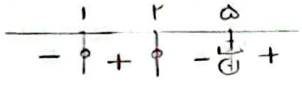
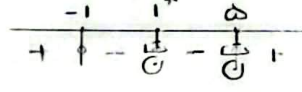
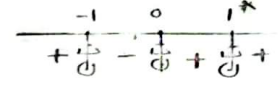
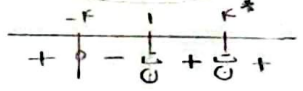
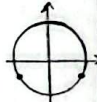
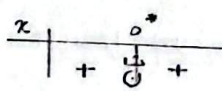


الف) $f(x) + 2$  ج) $f(x-1)$ 	ب) $2f(x)$  د) $-f(x)$ 	۱
الف) $x^2 - 5x + 4 > 0$ پاسخ: $(-\infty, 2) \cup (3, +\infty)$ $(x-2)(x-3) = 0$  ریشه ها: ۲, ۳	ب) $x^2 - 4x + 5 < 0 \rightarrow$ پاسخ: $(1, 5)$ $(x-1)(x-5) = 0$  ریشه ها: ۱, ۵	۲
ج) $x^2 + 4x + 5 > 0$ پاسخ: $(-\infty, -5) \cup (-1, +\infty)$ $(x+1)(x+5) = 0$  $x = -5, -1$	د) $x^2 - 7x + 4 \leq 0 \rightarrow$ پاسخ: $[1, 4]$ $(x-1)(x-4) = 0$  $x = 1, 4$	۳
الف) $\frac{x^2 - 3x + 2}{x - 5} < 0$ ریشه ها: ۱, ۲, ۵  پاسخ: $(-\infty, 1) \cup (2, 5)$	ب) $\frac{x^2 - 1}{x^2 - 4x + 5} \geq 0$ ریشه ها: ۱, ۵  پاسخ: $(-\infty, -1] \cup (5, +\infty)$	۴
الف) $y = \sqrt{x^2 - 1}$ $\rightarrow x = 1$ $\sqrt{x^2 - x} \rightarrow x(x-1)$ ریشه ها: -۱, ۰, ۱*  $D_f = (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$	ب) $\sqrt{x^2 - 14}$ ریشه ها: $\pm \sqrt{14}$ $\sqrt{x^2 - 5x + 4} \rightarrow$ ریشه ها: ۱, ۴  $D_f = (-\infty, -\sqrt{14}] \cup (\sqrt{14}, +\infty)$	۵
الف) $y = \sqrt{4 - \sqrt{2 - x}}$ $2 - x \geq 0 \rightarrow x \leq 2$ $4 - \sqrt{2 - x} \geq 0 \rightarrow (\sqrt{2 - x})^2 \leq 14 \rightarrow 2 - x \leq 14 \rightarrow x \geq -12$ ب) $y = \sqrt{3 - \sqrt{x - 2}}$ $x - 2 \geq 0 \rightarrow x \geq 2$ $3 - \sqrt{x - 2} \geq 0 \rightarrow (\sqrt{x - 2})^2 \leq 9 \rightarrow x - 2 \leq 9 \rightarrow x \leq 11$	پاسخ: $-12 \leq x \leq 2 \rightarrow D_f = [-12, 2]$ پاسخ: $2 \leq x \leq 11 \rightarrow D_f = [2, 11]$	۵

الف) $y = \sqrt{r - rx^r}$ $r - rx^r \geq 0 \rightarrow r \geq rx^r \rightarrow x^r \leq r \rightarrow -\sqrt[r]{r} \leq x \leq \sqrt[r]{r} \rightarrow D_f = [-\sqrt[r]{r}, \sqrt[r]{r}]$ Ⓟ ✓ ب) $y = \sqrt{r x - 9}$ $r x - 9 \geq 0 \rightarrow r x \geq 9 \rightarrow x \geq \frac{9}{r} \rightarrow x \geq \frac{9}{r}, x \leq -\frac{9}{r} \rightarrow D_f = (-\infty, -\frac{9}{r}] \cup [\frac{9}{r}, +\infty)$	٤
الف) $y = \sqrt[r]{\frac{ x +1}{ x -r}}$ $x \neq r \rightarrow x \neq \pm r \rightarrow D_f = \mathbb{R} - \{\pm r\}$ Ⓟ ✓ ب) $y = \sqrt[r]{\frac{\sqrt{x}+1}{\sqrt{x}-r}}$ $x \geq 0$ $(\sqrt{x} \neq r) \rightarrow x \neq r^2 \rightarrow D_f = [0, r^2) \cup (r^2, +\infty)$	٧
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) $y = \frac{\cos x + 1}{r \sin x + 1}$ $r \sin x \neq -1$ $\sin x \neq -\frac{1}{r}$ $x \neq 10^\circ, 170^\circ$ $D_f = \mathbb{R} - \{rk\pi - \frac{\pi}{r}, rk\pi + \frac{\pi}{r}\}$  ج) $y = \frac{\tan x + r}{\cot x - 1}$ $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{r}, k\pi + \frac{\pi}{r}\}$ $\cot x \neq 1 \rightarrow x \neq 45^\circ, 225^\circ$ $\cos x \neq 0 \rightarrow x \neq 90^\circ, 270^\circ$ $\sin x \neq 0 \rightarrow x \neq 0^\circ, 180^\circ, 360^\circ$  د) $y = \frac{\sin x + 1}{r \sin^2 x - r}$ $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{r}, k\pi + \frac{\pi}{r}\}$ $r \sin^2 x \neq r \rightarrow \sin x \neq \pm \frac{\sqrt{r}}{r}$ $x \neq 40^\circ, 140^\circ, 220^\circ, 320^\circ$ 	٨
$y = \frac{1}{\sqrt{r x-r - \frac{1}{r}}}$ $r x-r - \frac{1}{r} > 0$ $r x-r > \frac{1}{r}$ $x-r > \frac{1}{r^2} \rightarrow x-r > \frac{1}{r^2} \rightarrow x > \frac{1}{r^2} + r$ $x-r < -\frac{1}{r^2} \rightarrow x < -\frac{1}{r^2} + r$ $D_f = (-\infty, \frac{1}{r^2} + r) \cup (\frac{1}{r^2} + r, +\infty)$ Ⓟ ✓	٩
الف) $y = \sqrt{r - r x }$ $r - r x \geq 0 \rightarrow r \geq r x \rightarrow r \geq x \rightarrow -r \leq x \leq r \xrightarrow{\cap} [-r, r]$ ب) $y = \sqrt{\frac{ x }{ x }}$ $D_f = \mathbb{R} - \{0\}$ $x \neq 0$  Ⓟ ✓	١٠