

۲۰ آفرین

الف) $f(x) + 2$	ب) $f(x) - 1$	ج) $f(x-1)$	د) $-f(x)$	۱
الف) $x^2 - 5x + 6 > 0$ $(x-2)(x-3) > 0$ $\begin{array}{c ccc} & 2 & 3 & \\ \hline + & - & + & \end{array}$ $D_f = (-\infty, 2) \cup (3, +\infty)$	ب) $x^2 - 6x + 5 < 0$ $(x-1)(x-5) < 0$ $\begin{array}{c ccc} & 1 & 5 & \\ \hline + & - & + & \end{array}$ $D_f = (1, 5)$	ج) $x^2 + 6x + 5 \geq 0$ $(x+1)(x+5) \geq 0$ $\begin{array}{c ccc} & -1 & -5 & \\ \hline + & - & + & \end{array}$ $D_f = (-\infty, -5] \cup [-1, +\infty)$	د) برگردان	۲
الف) $\frac{x^2 - 3x + 2}{x-5} < 0$ $\begin{array}{c ccc} & 1 & 2 & 5 \\ \hline - & + & - & + \end{array}$ $(x-1)(x-2) < 0$ $\begin{array}{c ccc} & 1 & 2 & 5 \\ \hline + & - & + & \end{array}$ $D_f = (-\infty, 1) \cup (2, 5)$	ب) $\frac{x^2 - 1}{x^2 - 6x + 5} \geq 0$ $\frac{(x-1)(x+1)}{(x-1)(x-5)} \geq 0$ $\begin{array}{c ccc} & -1 & 1 & 5 \\ \hline + & - & - & + \end{array}$ $D_f = (-\infty, -1] \cup (1, +\infty)$			۳
الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - x}}$ $\frac{(x-1)(x+1)}{x(x-1)(x+1)} \geq 0$ $\begin{array}{c ccc} & -1 & 0 & 1 \\ \hline + & - & + & + \end{array}$ $D_f = (-\infty, -1) \cup (0, +\infty) - \{1\}$	ب) $y = \sqrt{\frac{x^2 - 16}{x^2 - 2x + 1}}$ $\frac{(x-4)(x+4)}{(x-1)(x-1)} \geq 0$ $\begin{array}{c ccc} & -4 & 1 & 4 \\ \hline + & - & + & + \end{array}$ $D_f = (-\infty, -4] \cup (1, +\infty) - \{1\}$			۴
الف) $y = \sqrt{4 - \sqrt{2-x}}$ $2-x \geq 0$ $x \leq 2$ $4 - \sqrt{2-x} \geq 0$ $2-x \leq 16$ $x \geq -14$ $D_f = [-14, 2]$	ب) $y = \sqrt{3 - \sqrt{x-2}}$ $x-2 \geq 0$ $x \geq 2$ $3 - \sqrt{x-2} \geq 0$ $x-2 \leq 9$ $x \leq 11$ $D_f = [2, 11]$			۵

$الف) y = \sqrt{4 - 3x^2}$ $3x^2 \leq 4$ $x^2 \leq \frac{4}{3}$ $-\sqrt{\frac{4}{3}} \leq x \leq \sqrt{\frac{4}{3}}$ $D_f = [-\sqrt{\frac{4}{3}}, \sqrt{\frac{4}{3}}]$	$ب) y = \sqrt{3 x - 9}$ $3 x \geq 9$ $ x \geq 3$ $x \geq 3$ $x \leq -3$ $D_f = (-\infty, -3] \cup [3, \infty)$	٦
$الف) y = \sqrt[3]{\frac{ x +1}{ x -3}}$ $ x - 3 \neq 0$ $ x \neq 3$ $x \neq \pm 3$ $D_f = \mathbb{R} - \{3, -3\}$	$ب) y = \sqrt[3]{\frac{ x +1}{ x -3}}$ $ x - 3 \neq 0$ $ x \neq 3$ $x \neq \pm 3$ $D_f = \mathbb{R} - \{3\} \cup \{0\}$	٧
$الف) y = \frac{\sin x}{2\cos x - 1}$ $\cos x \neq \frac{1}{2}$ $D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{3}\}$	$ب) y = \frac{\cos x + 1}{2\sin x + 1}$ $\sin x \neq -\frac{1}{2}$ $D_f = \mathbb{R} - \{2k\pi - \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}\}$	درجه پست صفر ٨
$الف) y = \sqrt{2 x-2 - \frac{1}{2}}$ $2 x-2 \geq \frac{1}{2}$ $ x-2 \geq \frac{1}{4}$ $x-2 \geq \frac{1}{4} \quad x-2 \leq -\frac{1}{4}$ $x \geq \frac{9}{4} \quad x \leq \frac{7}{4}$ $D_f = (-\infty, \frac{7}{4}] \cup [\frac{9}{4}, \infty)$	$ب) y = \sqrt{\frac{ x }{ x +1}}$ $y = \sqrt{1}$ $D_f = \mathbb{R} - \{0\}$	٩
$الف) y = \sqrt{4 - 2 x }$ $2 x \geq 4$ $ x \geq 2$ $-2 \leq x \leq 2$ $D_f = [-2, 2]$	$ب) y = \sqrt{\frac{ x }{ x +1}}$ $y = \sqrt{1}$ $D_f = \mathbb{R} - \{0\}$	حجت اطمینان ١٠

الف) $f(x)+2$	ب) $2f(x)$	ج) $f(x-1)$	د) $-f(x)$	۱
الف) $x^2 - 5x + 6 > 0$ $(x-2)(x-3) > 0$ $\begin{array}{c} 2 \quad 3 \\ + \quad - \quad - \quad + \end{array}$ $D_f = (-\infty, 2) \cup (3, +\infty)$	ب) $x^2 - 6x + 4 < 0$ $(x-1)(x-4) < 0$ $\begin{array}{c} 1 \quad 4 \\ + \quad - \quad - \quad + \end{array}$ $D_f = (1, 4)$	ج) $x^2 + 6x + 4 \geq 0$ $(x+1)(x+4) \geq 0$ $\begin{array}{c} -1 \quad -4 \\ + \quad - \quad - \quad + \end{array}$ $D_f = (-\infty, -4] \cup [-1, +\infty)$	برگه سوم	۲
الف) $\frac{x^2 - 3x + 2}{x-4} < 0$ $\begin{array}{c} 1 \quad 2 \quad 4 \\ - \quad + \quad - \quad + \end{array}$ $(x-1)(x-2) < 0$ $\begin{array}{c} 1 \quad 2 \quad 4 \\ + \quad - \quad - \quad + \end{array}$ $D_f = (-\infty, 1) \cup (2, 4)$	ب) $\frac{x^2 - 1}{x^2 - 6x + 4} \geq 0$ $(x-1)(x+1) \geq 0$ $\begin{array}{c} -1 \quad 1 \quad 4 \\ + \quad - \quad - \quad + \end{array}$ $D_f = (-\infty, -1] \cup (1, +\infty)$			۳
الف) $y = \sqrt{\frac{x^2 - 1}{x^2 - x}}$ $\frac{(x-1)(x+1)}{x(x-1)(x+1)} \geq 0$ $\begin{array}{c} -1 \quad 0 \quad 1 \\ + \quad - \quad - \quad + \end{array}$ $D_f = (-\infty, -1) \cup (0, +\infty) - \{1\}$	ب) $y = \sqrt{\frac{x^2 - 16}{x^2 - 4x + 4}}$ $\frac{(x-4)(x+4)}{(x-4)(x-1)} \geq 0$ $\begin{array}{c} -4 \quad 1 \quad 4 \\ + \quad - \quad - \quad + \end{array}$ $D_f = (-\infty, -4] \cup (1, +\infty) - \{4\}$			۴
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$$\leq \text{سوال } \frac{2}{3} \text{ بخش } \leq x^2 - 7x + 6 \leq 0$$

$$(x-1)(x-6) \leq 0 \quad D_f = [1, 6]$$

1	6
+	+
+	+
-	-
+	+

$$\geq \text{سوال } \frac{1}{2} \text{ بخش } \geq \frac{\sin x + 1}{4\sin^2 x - 3}$$

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

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