

الف) $f(x) + 2$	ب) $2f(x)$ سقف کشیده آرمی شود	ج) $f(x-1)$	د) $-f(x)$
الف) $x^2 - 5x + 6 > 0$ $x=2, x=3$ $\frac{+}{-} \frac{+}{-} \frac{+}{+}$ $(-\infty, 2) \cup (3, +\infty)$	ب) $x^2 - 6x + 9 \geq 0$ $x=1, x=3$ $\frac{+}{+} \frac{+}{-} \frac{+}{+}$ $(1, 3)$	ج) $x^2 + 6x + 9 \geq 0$ $x=-1, x=-3$ $\frac{-}{+} \frac{-}{-} \frac{-}{+}$ $(-\infty, -3] \cup [-1, +\infty)$	د) $x^2 - 7x + 6 \leq 0$ $x=1, x=6$ $\frac{+}{+} \frac{+}{-} \frac{+}{+}$ $[1, 6]$
الف) $\frac{x^2 - 3x + 2}{x - 4} < 0$ $x=1, x=2, x=4$ $(-\infty, 1) \cup (2, 4)$	ب) $\frac{x^2 - 1}{x^2 - 6x + 9} \geq 0$ $x=1, x=-1, x=3$ $(-\infty, -1] \cup (3, +\infty)$	ج) $\frac{x^2 - 1}{x^2 - 6x + 9} \geq 0$ $x=1, x=-1, x=3$ $(-\infty, -1] \cup (3, +\infty)$	د) $\frac{x^2 - 1}{x^2 - 6x + 9} \geq 0$ $x=1, x=-1, x=3$ $(-\infty, -1] \cup (3, +\infty)$
الف) $\sqrt{\frac{x^3 - 1}{x^3 - 2x}}$ $x^3 - 1 \geq 0 \Rightarrow x \geq 1$ $x^3 - 2x \neq 0 \Rightarrow x \neq 0, x \neq \pm 1$ $D_f = (1, +\infty)$	ب) $\sqrt{\frac{x^2 - 16}{x^2 - 4x + 4}}$ $x^2 - 16 \geq 0 \Rightarrow x \leq -4 \text{ or } x \geq 4$ $x^2 - 4x + 4 \neq 0 \Rightarrow x \neq 2$ $D_f = (-\infty, -4] \cup (4, +\infty) \cup (2, +\infty)$	ج) $\sqrt{\frac{x^2 - 16}{x^2 - 4x + 4}}$ $x^2 - 16 \geq 0 \Rightarrow x \leq -4 \text{ or } x \geq 4$ $x^2 - 4x + 4 \neq 0 \Rightarrow x \neq 2$ $D_f = (-\infty, -4] \cup (4, +\infty) \cup (2, +\infty)$	د) $\sqrt{\frac{x^2 - 16}{x^2 - 4x + 4}}$ $x^2 - 16 \geq 0 \Rightarrow x \leq -4 \text{ or } x \geq 4$ $x^2 - 4x + 4 \neq 0 \Rightarrow x \neq 2$ $D_f = (-\infty, -4] \cup (4, +\infty) \cup (2, +\infty)$
الف) $\sqrt{4 - \sqrt{2 - x}}$ $2 - x \geq 0 \Rightarrow x \leq 2$ $4 - \sqrt{2 - x} \geq 0 \Rightarrow \sqrt{2 - x} \leq 2 \Rightarrow 2 - x \leq 4 \Rightarrow x \geq -2$ $D_f = [-2, 2]$	ب) $\sqrt{3 - \sqrt{x - 2}}$ $x - 2 \geq 0 \Rightarrow x \geq 2$ $3 - \sqrt{x - 2} \geq 0 \Rightarrow \sqrt{x - 2} \leq 3 \Rightarrow x - 2 \leq 9 \Rightarrow x \leq 11$ $D_f = [2, 11]$	ج) $\sqrt{3 - \sqrt{x - 2}}$ $x - 2 \geq 0 \Rightarrow x \geq 2$ $3 - \sqrt{x - 2} \geq 0 \Rightarrow \sqrt{x - 2} \leq 3 \Rightarrow x - 2 \leq 9 \Rightarrow x \leq 11$ $D_f = [2, 11]$	د) $\sqrt{3 - \sqrt{x - 2}}$ $x - 2 \geq 0 \Rightarrow x \geq 2$ $3 - \sqrt{x - 2} \geq 0 \Rightarrow \sqrt{x - 2} \leq 3 \Rightarrow x - 2 \leq 9 \Rightarrow x \leq 11$ $D_f = [2, 11]$

$$D_f = [r, 11]$$

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$$9 \geq x - 2$$

$$9 + 2 \geq x$$

$$w^2 \geq (\sqrt{2t-1})^2$$

الف) $\sqrt{4-2x^2}$ $4-2x^2 \geq 0$ $4 \geq 2x^2$ $2 \geq x^2$ $-\sqrt{2} \leq x \leq \sqrt{2}$ $D_f = [-\sqrt{2}, \sqrt{2}]$	6
ب) $\sqrt{3 x -9}$ $3 x -9 \geq 0$ $3 x \geq 9$ $x \geq 3$ $D_f = (-\infty, -3] \cup [3, +\infty)$	7
الف) $y = \sqrt[3]{\frac{ x +1}{ x -3}}$ $x -3 \neq 0$ $x \neq 3$ $D_f = (-\infty, -3) \cup (-3, 3) \cup (3, +\infty)$	8
ب) $y = \sqrt[3]{\frac{\sqrt{x}+1}{\sqrt{x}-3}}$ $x \geq 0$ $\sqrt{x}-3 \neq 0$ $x \neq 9$ $D_f = [0, 9) \cup (9, +\infty)$	9
الف) $\frac{\sin x}{y \cos x - 1}$ $y \cos x - 1 = 0$ $y \cos x = 1$ $\cos x = \frac{1}{y}$ ب) $\frac{\cos x + 1}{y \sin x + 1}$ $y \sin x + 1 = 0$ $y \sin x = -1$ $\sin x = -\frac{1}{y}$ ج) $\frac{\tan x + y}{\cot x - 1}$ $\cot x - 1 = 0$ $\cot x = 1$ د) $y \sin^2 x - y = 0$ $\sin^2 x = \frac{y}{y}$ $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2} k \in \mathbb{Z}\}$ $D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{2}, 2k\pi - \frac{\pi}{2} k \in \mathbb{Z}\}$ $D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{2} k \in \mathbb{Z}\}$	10
$D_f = (-\infty, \frac{y}{x}) \cup (\frac{9}{x}, \infty)$ $x - y \leq -\frac{1}{x}$ الف) $\frac{1}{\sqrt{y x-y - \frac{1}{x}}}$ $y x-y - \frac{1}{x} \geq 0$ $y x-y \geq \frac{1}{x}$ $x-y \geq \frac{1}{x}$ $x > \frac{1}{x} + y$ $x > \frac{9}{x}$	11
الف) $\sqrt{4-2 x } \Rightarrow 4-2 x \geq 0$ $-2 x \geq -4$ $x \leq 2$ $D_f = [-2, 2]$	12
ب) $\sqrt{\frac{ x }{ x +1}} \Rightarrow \frac{ x }{ x +1} \geq 0$ $D_f = \mathbb{R} - \{0\}$	13