

الف) $y = f(x) + 2$	ب) $y = 2f(x)$	ج) $y = f(x-1)$	د) $y = -f(x)$	1
الف) $x^2 - 5x + 4 > 0$ $D = (-\infty, 2) \cup (3, +\infty)$	ب) $x^2 - 4x + 5 < 0$ $D = (1, 5)$	ج) $x^2 + 4x + 5 \geq 0$ $D = (-\infty, -5] \cup [-1, +\infty)$	د) $x^2 - 7x + 4 \leq 0$ $D = [1, 4]$	2
الف) $\frac{x^2 - 3x + 2}{x - 5} < 0$ $D = (-\infty, 1) \cup (2, 5)$	ب) $\frac{x^2 - 1}{x^2 - 4x + 5} \geq 0$ $D = (-\infty, -1] \cup (5, +\infty)$	ج) $\frac{(x-2)(x-1)}{x-5} < 0$ $D = (-\infty, 1) \cup (2, 5)$	د) $\frac{x^2 - 1}{x^2 - 4x + 5} \geq 0$ $D = (-\infty, -1] \cup (5, +\infty)$	3
الف) $y = \sqrt{\frac{x^3 - 1}{x^2 - x}} \rightarrow x(x-1)(x+1)$ $D_f = (-\infty, -1) \cup (0, 1) \cup (1, +\infty)$	ب) $y = \sqrt{\frac{x^2 - 1}{x^2 - 5x + 4}}$ $D_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$	ج) $y = \sqrt{\frac{x^2 - 1}{x^2 - 5x + 4}}$ $D_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$	د) $y = \sqrt{\frac{x^2 - 1}{x^2 - 5x + 4}}$ $D_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$	4
الف) $y = \sqrt{4 - \sqrt{2-x}}$ $D_f = [-14, 2]$	ب) $y = \sqrt{3 - \sqrt{x-2}}$ $D_f = [2, 11]$	ج) $y = \sqrt{4 - \sqrt{2-x}}$ $D_f = [-14, 2]$	د) $y = \sqrt{3 - \sqrt{x-2}}$ $D_f = [2, 11]$	5

(ب) $y = \sqrt{3 x - 9}$ $3 x - 9 \geq 0 \Rightarrow x \geq 3$ $\Rightarrow x \geq 3, x \leq -3$ $D_f = (-\infty, -3] \cup [3, +\infty)$	(الف) $y = \sqrt{4 - 2x^2}$ $4 - 2x^2 \geq 0 \rightarrow x^2 \leq 2$ $\Rightarrow -\sqrt{2} \leq x \leq \sqrt{2}$ $D_f = [-\sqrt{2}, \sqrt{2}]$	٦
(ب) $y = \sqrt[3]{\frac{\sqrt{x} + 1}{\sqrt{x} - 3}}$ $x \geq 0$ $\sqrt{x} - 3 \neq 0 \rightarrow x \neq 9$ $D_f = [0, +\infty) - \{9\}$	(الف) $y = \sqrt[3]{\frac{ x + 1}{ x - 3}}$ $x - 3 \neq 0 \Rightarrow x \neq 3 \Rightarrow x \neq \pm 3$ $D_f = \mathbb{R} - \{-3, 3\}$	٧
(ب) $y = \frac{\cos x + 1}{2 \sin x + 1}$ $2 \sin x + 1 \neq 0$ $\sin x \neq -\frac{1}{2}$ $D_f = \mathbb{R} - \{2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6}\}$	(الف) $y = \frac{\sin x}{2 \cos x - 1}$ $2 \cos x - 1 \neq 0$ $\cos x \neq \frac{1}{2}$ $D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{3}\}$	٨
(ب) $y = \frac{\sin x + 1}{2 \sin^2 x - 3}$ $2 \sin^2 x - 3 \neq 0$ $\sin x \neq \pm \frac{\sqrt{6}}{2}$ $D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{3}, 2k\pi + \frac{2\pi}{3}\}$	(ج) $y = \frac{\tan x + 2}{\cot x - 1}$ $\cot x - 1 \neq 0$ $\cot x \neq 1$ $D_f = \mathbb{R} - \{k\pi + \frac{\pi}{4}, k\pi + \frac{5\pi}{4}\}$	٩
$y = \frac{1}{\sqrt{2 x - 2 - \frac{1}{x}}}$ $2 x - 2 - \frac{1}{x} > 0$ $x - 2 > \frac{1}{2x}$ $x > \frac{1}{2x} \Rightarrow x > \frac{1}{2x} \text{ or } x < -\frac{1}{2x}$ $\Rightarrow x > \frac{1}{2} \text{ or } x < -\frac{1}{2}$	$D_f = (-\infty, -\frac{1}{2}) \cup (\frac{1}{2}, +\infty)$ $x - 2 > \frac{1}{2x} \rightarrow x > \frac{1}{2x}$ $x - 2 < -\frac{1}{2x} \rightarrow x < -\frac{1}{2x}$	٩
(ب) $y = \sqrt{\frac{ x }{ x }}$ $\frac{ x }{ x } \geq 0 \rightarrow x \geq 0$ $x \neq 0 \Rightarrow x \neq 0$ $D_f = \mathbb{R} - \{0\}$	(الف) $y = \sqrt{4 - 2 x }$ $4 - 2 x \geq 0$ $2 x \leq 4 \Rightarrow x \leq 2$ $\Rightarrow -2 \leq x \leq 2$ $D_f = [-2, 2]$	١٠