

الف) $f(x) + 2$		1
ب) $2f(x)$		
ج) $f(x-1)$		
د) $-f(x)$		
الف) $x^2 - 5x + 2 > 0$	$(x-2)(x-1) > 0$ $\frac{2}{+} \frac{-}{-} \frac{+}{+}$ $\rightarrow D_f = (-\infty, 2) \cup (1, +\infty)$	
ب) $x^2 - 4x + 5 < 0$	$(x-1)(x-5) < 0$ $\frac{1}{+} \frac{-}{-} \frac{+}{+}$ $\rightarrow D_f = (1, 5)$	2
ج) $x^2 + 4x + 5 \geq 0$	$(x+1)(x+5) \geq 0$ $\frac{-1}{+} \frac{-}{-} \frac{+}{+}$ $\rightarrow D_f = (-\infty, -5] \cup [-1, +\infty)$	
د) $x^2 - 7x + 4 \leq 0$	$(x-1)(x-4) \leq 0$ $\frac{1}{+} \frac{-}{-} \frac{+}{+}$ $\rightarrow D_f = [1, 4]$	
الف) $\frac{x^2 - 3x + 2}{x - 5} < 0$	$\frac{(x-1)(x-2)}{x-5} < 0$ $\frac{1}{+} \frac{-}{-} \frac{+}{+}$ $\rightarrow D_f = (-\infty, 1) \cup (2, 5) \cup (5, +\infty)$	3
ب) $\frac{x^2 - 1}{x^2 - 4x + 5} \geq 0$	$\frac{(x-1)(x+1)}{(x-1)(x-5)} \geq 0$ $\frac{x+1}{x-5} \geq 0$ $\frac{-1}{+} \frac{+}{-} \frac{+}{+}$ $\rightarrow D_f = (-\infty, -1] \cup (5, +\infty)$	
ج) $y = \frac{1}{\sqrt{ x-2 } - \frac{1}{4}}$	$2 x-2 - \frac{1}{4} > 0 \rightarrow 2 x-2 > \frac{1}{4} \rightarrow x-2 > \frac{1}{8}$ $x-2 > \frac{1}{8} \text{ و } x-2 < -\frac{1}{8}$ $x > \frac{15}{8} \text{ و } x < \frac{31}{8}$ $\rightarrow D_f = (-\infty, \frac{15}{8}) \cup (\frac{31}{8}, +\infty)$	4
الف) $y = \sqrt{4-2 x }$	$4-2 x \geq 0 \rightarrow 2 x \leq 4 \rightarrow x \leq 2$ $-2 \leq x \leq 2$ $D_f = [-2, 2]$	
ب) $y = \sqrt{\frac{ x }{ x }}$	$ x \neq 0 \rightarrow x \neq 0$ $D_f = (-\infty, 0) \cup (0, +\infty)$	5

الف) $\sqrt{4-2 x }$	$4-2 x \geq 0 \rightarrow 2 x \leq 4 \rightarrow x \leq 2$ $-2 \leq x \leq 2$ $D_f = [-2, 2]$	6
ب) $y = \sqrt{ x +1}$	$ x +1 \geq 0 \rightarrow x \geq -1 \rightarrow x \geq 0 \rightarrow x \leq -1$ $x \geq 1$ $D_f = (-\infty, -1] \cup [1, +\infty)$	
الف) $y = \sqrt{\frac{ x +1}{ x -3}}$	$ x -3 \neq 0 \rightarrow x \neq 3 \rightarrow x \neq \pm 3$ $D_f = \mathbb{R} - \{-3, 3\}$	7
ب) $y = \sqrt{\frac{\sqrt{x}+1}{\sqrt{x}-3}}$	$x \geq 0$ $\sqrt{x}-3 \neq 0 \rightarrow \sqrt{x} \neq 3 \rightarrow x \neq 9$ $D_f = [0, 9) \cup (9, +\infty)$	
الف) $y = \frac{\sin x}{\cos x - 1}$	$\cos x - 1 \neq 0 \rightarrow \cos x \neq 1$ $D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{4}\}$	8
ب) $y = \frac{\cos x + 1}{\sin x + 1}$	$\sin x + 1 \neq 0 \rightarrow \sin x \neq -1$ $D_f = \mathbb{R} - \{x \mid x = \frac{3\pi}{2} + 2k\pi\}$	
ج) $y = \frac{\tan x + 2}{\cot x - 1}$	$\cot x - 1 \neq 0 \rightarrow \cot x \neq 1 \rightarrow \frac{\cos x}{\sin x} \neq 1$ $D_f = \mathbb{R} - \{k\pi \pm \frac{\pi}{4}\}$	
د) $y = \frac{\sin x + 1}{\sin x - 3}$	$\sin x - 3 \neq 0 \rightarrow \sin x \neq 3$ $D_f = \mathbb{R}$	
الف) $y = \frac{1}{\sqrt{ x-2 } - \frac{1}{4}}$	$2 x-2 - \frac{1}{4} > 0 \rightarrow 2 x-2 > \frac{1}{4} \rightarrow x-2 > \frac{1}{8}$ $x-2 > \frac{1}{8} \text{ و } x-2 < -\frac{1}{8}$ $x > \frac{15}{8} \text{ و } x < \frac{31}{8}$ $\rightarrow D_f = (-\infty, \frac{15}{8}) \cup (\frac{31}{8}, +\infty)$	9
الف) $y = \sqrt{4-2 x }$	$4-2 x \geq 0 \rightarrow 2 x \leq 4 \rightarrow x \leq 2$ $-2 \leq x \leq 2$ $D_f = [-2, 2]$	
ب) $y = \sqrt{\frac{ x }{ x }}$	$ x \neq 0 \rightarrow x \neq 0$ $D_f = (-\infty, 0) \cup (0, +\infty)$	10