



الف) $(x-2)(x-3) > 0$ $\frac{2}{+} \frac{3}{-}$ $D_f = (-\infty, 2) \cup (3, +\infty)$

ب) $x^2 - 4x + 5 < 0$ $a+b+c=0$ $x=1$ $x = \frac{c}{a} = 5$ $\frac{1}{+} \frac{5}{-}$ $D_f = (1, 5)$

ج) $x^2 + 4x + 5 > 0$ $a+c=b$ $x=-1$ $x = -\frac{c}{a} = -5$ $\frac{-5}{+} \frac{-1}{-}$ $D_f = (-\infty, -5] \cup [-1, +\infty)$

د) $(x-1)(x-4) \leq 0$ $\frac{1}{+} \frac{4}{-}$ $D_f = [1, 4]$

الف) $\frac{x^2 - 3x + 2}{x-5} < 0$ $\frac{(x-1)(x-2)}{x-5}$ $\frac{1}{+} \frac{2}{+} \frac{5}{-}$ $D_f = (-\infty, 1) \cup (2, 5)$

ب) $\frac{x^2 - 1}{x^2 - 4x + 5} \geq 0$ $\frac{(x-1)(x+1)}{x^2 - 4x + 5}$ $\frac{1}{+} \frac{1}{-} \frac{5}{+}$ $D_f = (-\infty, -1] \cup (5, +\infty)$
 $a+b+c=0$
 $x=1$ $x = \frac{c}{a} = 5$

الف) $\sqrt{\frac{x^3 - 1}{x^3 - x}} \geq 0$ $\frac{x^3 - 1}{x^3 - x} \geq 0$ $\frac{x(x-1)}{x(x-1)(x+1)}$ $\frac{1}{+} \frac{-1}{-} \frac{1}{+}$ $D_f = (-1, 0) \cup (1, +\infty)$

ب) $\sqrt{\frac{x^2 - 16}{x^2 - 5x + 4}} \geq 0$ $\frac{x^2 - 16}{x^2 - 5x + 4} \geq 0$ $\frac{(x-4)(x+4)}{(x-4)(x-1)}$ $\frac{-4}{+} \frac{1}{-} \frac{4}{+}$ $D_f = (-\infty, -4] \cup (1, 4) \cup (4, +\infty)$
 $x^2 - 5x + 4$
 $a+b+c=0$ $x=1$ $x = \frac{c}{a} = 4$

الف) $\sqrt{4 - \sqrt{2-x}}$ $4 - \sqrt{2-x} \geq 0$ $4 \geq \sqrt{2-x}$ $16 \geq 2-x$ $-14 \geq -x$ $x \geq 14$ $D_f = [14, 2]$

ب) $\sqrt{3 - \sqrt{x-2}}$ $3 - \sqrt{x-2} \geq 0$ $3 \geq \sqrt{x-2}$ $9 \geq x-2$ $11 \geq x$ $D_f = [2, 11]$

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