

الف) $\cos n + 1 \neq 0 \Rightarrow \cos n \neq -1 \Rightarrow \cos n \neq -1$

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



ب) $\cos n - 1 \neq 0 \Rightarrow \cos n \neq 1$

$D_f = \mathbb{R} - \{2k\pi\}$



الف) ① $\tan n + 1 \neq 0 \Rightarrow \tan n \neq -1$

$\Rightarrow \{k\pi - \frac{\pi}{4}\}$

② $\cos n \neq 0 \Rightarrow \{k\pi + \frac{\pi}{2}\}$

$D_f = \mathbb{R} - \left\{ k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{2} \right\}$



ب) ① $\cot n - 1 \neq 0 \Rightarrow \cot n \neq 1$

$\Rightarrow \{k\pi + \frac{\pi}{4}\}$

② $\sin n \neq 0 \Rightarrow \{k\pi\}$

$D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{4}, k\pi \right\}$



الف) $-1 \leq \sqrt{x-2} \leq 1 \Rightarrow \sqrt{x-2} \leq 1 \Rightarrow x-2 \leq 1 \Rightarrow x \leq 3$
 $\sqrt{x-2} \geq -1 \Rightarrow x-2 \geq 1 \Rightarrow x \geq 3$
 $\Rightarrow x \leq 3$

$D_f = [-3, 3]$

ب) ① $x \geq 0$

② $-1 \leq \sqrt{x-3} \leq 1 \Rightarrow \sqrt{x-3} \leq 1 \Rightarrow x-3 \leq 1 \Rightarrow x \leq 4$
 $\sqrt{x-3} \geq -1 \Rightarrow x-3 \geq 1 \Rightarrow x \geq 4$
 $\Rightarrow x \leq 4$

$D_f = [4, 4]$

الف) $-1 \leq |n-3| \leq 1 \Rightarrow 2 \leq |n| \leq 4$

$\{ |n| \leq 4 \Rightarrow -4 \leq n \leq 4$

$|n| \geq 2 \Rightarrow \begin{cases} n \geq 2 \\ n \leq -2 \end{cases}$

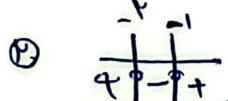
$D_f = [-4, -2] \cup [2, 4]$

ب) $-1 \leq \sqrt{x+1} \leq 1$

$\begin{cases} \sqrt{x+1} \leq 1 \Rightarrow x+1 \leq 1 \Rightarrow x \leq 0 \\ \sqrt{x+1} \geq -1 \Rightarrow x+1 \geq 1 \Rightarrow x \geq 0 \end{cases} \Rightarrow x = 0$



$[-1, 0]$



$(-\infty, -1] \cup [1, \infty)$

$D_f = [-1, 0] \cup [1, \infty)$

الف) $\begin{cases} x^2 - 4 > 0 \Rightarrow x > 2 \text{ or } x < -2 \\ x > 0 \\ x \neq 1 \end{cases}$

$D_f = (-\infty, -2) \cup (2, \infty)$

ب) $\begin{cases} x - |x| > 0 \Rightarrow |x| < x \Rightarrow -x < x < x \\ x > 0 \\ x \neq 1 \end{cases}$

$D_f = (-2, 2)$

الف) $\begin{cases} x - x > 0 \Rightarrow x < 0 \\ x - 3 > 0 \Rightarrow x > 3 \\ x - 4 \neq 0 \Rightarrow x \neq 4 \end{cases}$

$D_f = (3, \infty) - \{4\}$

ب) $\begin{cases} x^2 - 1 > 0 \Rightarrow x > 1 \text{ or } x < -1 \\ x + 3 > 0 \Rightarrow x > -3 \\ x + 4 \neq 0 \Rightarrow x \neq -4 \end{cases}$

$D_f = [-3, -1] \cup [1, \infty) - \{-4\}$

الف) $\frac{x^2 - 2x + 3}{x - 2} > 0 \Rightarrow (x-2)(x-1) > 0$

$D_f = (1, 2) \cup (2, \infty)$

ب) $\begin{cases} \frac{x+3}{x-2} > 0 \Rightarrow (x-2)(x+3) > 0 \\ x+4 > 0 \Rightarrow x > -4 \\ x+5 \neq 0 \Rightarrow x \neq -5 \end{cases}$

$D_f = (-5, -4) \cup (2, \infty) - \{-5\}$

الف) $\log_2(x-2) \leq 4 \Rightarrow x-2 \leq 16 \Rightarrow x \leq 18$
 $x-2 > 0 \Rightarrow x > 2$

$D_f = (2, 18]$

ب) $\begin{cases} \sqrt{\log_2 x} - 1 > 0 \Rightarrow \log_2 x > 1 \Rightarrow x > 2 \\ x > 0 \end{cases}$

$D_f = (2, \infty)$

الف) $\begin{cases} x^2 + 1 \neq 0 \\ x^2 \neq -1 \end{cases}$
 $D_f = \mathbb{R}$

ب) $\begin{cases} x^2 \neq 0 \\ x \neq 0 \end{cases}$
 $D_f = \mathbb{R} - \{0\}$

الف) $\{n \in \mathbb{W} \Rightarrow n \in \frac{\mathbb{W}-1}{2}\}$
 $D_f = \{n \mid n = \frac{k-1}{2}, k \in \mathbb{W}\}$