

الف) $y = \sqrt{x \sin x - 1}$ $x \sin x - 1 \geq 0$ $\sin x \geq \frac{1}{x}$ $D_f = \left[2k\pi + \frac{\pi}{4}, 2k\pi + \frac{5\pi}{4} \right]$

Ⓟ ✓

ب) $y = \sqrt{\cos x - 1}$ $\cos x - 1 \geq 0$ $\cos x \geq 1$ $D_f = \{2k\pi\}$

الف) $\cos y = |x| - 2$ $-1 \leq |x| - 2 \leq 1$ $-1 \leq |x| \leq 3$ $D_f = (-\infty, -3] \cup [3, +\infty) \cup [-1, 1]$
 $D_f = [-3, -2] \cup [-1, 0]$ $[-4, -2] \cup [2, 4]$ $x \cup x \leq -2$ $-2 \leq x \leq 2$
 باید استراب گیری

ب) $y = \arcsin(x^2 + 2x + 1)$ $x^2 + 2x + 1 \geq -1$ $x^2 + 2x + 1 \leq 1$
 $x^2 + 2x + 2 \geq 0$ $x^2 + 2x \leq 0$
 $-1 \leq x^2 + 2x + 1 \leq 1$ $(x+1)(x+2) \geq 0$ $x(x+2) \leq 0$
 ① $x \leq -2$ ② $0 \leq x \leq -2$

الف) $y = \sqrt{2 - \log_2(x-2)}$ $x-2 \geq 0$ $x \geq 2$ $D_f = (2, 11]$
 $2 - \log_2(x-2) \geq 0 \rightarrow \log_2(x-2) \leq 2 \rightarrow x-2 \leq 2^2 \rightarrow x-2 \leq 4 \rightarrow x \leq 11$
 Ⓟ ✓ $D_f = (-1, 0) \cup (1, +\infty)$

ب) $y = \log_2(x^2 - 2x)$ $x^2 - 2x > 0$ $x(x-2) > 0$
 ① $x < 0$ ② $x > 2$

الف) $y = \frac{x^2}{x^2 + 1} \rightarrow \frac{x^2}{x^2 + 1} \rightarrow D_f = \mathbb{R}$ ج) $y = \frac{x}{x^2 - 2}$ $x^2 - 2 \neq 0$ $x^2 \neq 2$
 $\log_2 x \neq x$

ب) $y = \frac{x}{x^2 - 1}$ $x^2 - 1 \neq 0$ $x \neq \pm 1$ $D_f = \mathbb{R} - \{\pm 1\}$
 $x \neq 0 \rightarrow D_f = \mathbb{R} - \{0\}$ ج) $y = \frac{x}{x^2 - x}$ $x^2 - x \neq 0$ $x \neq 0$ $x \neq 1$
 $x \neq \log_2 x$ $D_f = \mathbb{R} - \{\log_2 x\}$

الف) $y = (x+1)!$ $x+1 \in \mathbb{W}$ $x \in \frac{\mathbb{W}-1}{1}$ $D_f = \{x | x = \frac{k-1}{1}, k \in \mathbb{W}\}$

Ⓟ ✓

$D_f = \{x | x = \frac{ak-2}{2k-2}, k \in \mathbb{W}\}$

ب) $y = \left(\frac{x^2 - 2}{x^2 - 1} \right)!$ $\frac{x^2 - 2}{x^2 - 1} \in \mathbb{W}$ $x \in \frac{-d\mathbb{W} + 2}{2\mathbb{W} - 1}$ $x \in \frac{d\mathbb{W} - 2}{2\mathbb{W} - 1}$