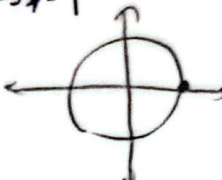


الف) $y = \sqrt{\frac{x^2-2x}{x^2-x}}$ $\frac{x(x-2)}{x(x-1)} \geq 0$ $x(x+1)(x-1) > 0$ $D_f = (-1, 1) \cup [2, +\infty)$	ب) $y = \sqrt{\frac{x^2-2x}{x^2-x}} \geq 0$ $x^2(x^2-1) \rightarrow x^2(x-1)(x+1)$ $x(x^2-1) \rightarrow x(x-1)(x+1) = D_f$ $D_f = (-1, 1) \cup [2, +\infty)$
الف) $y = \frac{x+1}{\sqrt{x+1}}$ $x+1 > 0$ $x > -1$ $D_f = R^+$	ب) $y = \frac{1}{\sqrt{x x }}$ $x x > 0$ $0 < x$ $x > 0$ $D_f = R^+$
الف) $y = \sqrt{2-x}$ $2-x \geq 0$ $x \leq 2$ $D_f = (-\infty, 2]$	ب) $y = \frac{1}{\sqrt{2-x}}$ $2-x > 0$ $x < 2$ $D_f = (-\infty, 2)$
الف) $y = \sqrt{x-\frac{1}{x}} + [x+\frac{1}{x}]$ $[x+\frac{1}{x}] + [x+\frac{1}{x}] D_f = [\frac{1}{x}, +\infty)$ $[x+\frac{1}{x}] - 1 + [x+\frac{1}{x}] \geq 0$ $x+\frac{1}{x} \geq 1 \rightarrow x \geq \frac{1}{x}$ $2[x+\frac{1}{x}] - 1 \geq 0 \rightarrow \sqrt{x+\frac{1}{x}} \geq \frac{1}{2}$	ب) $y = \sqrt{x-\frac{1}{x}} + [-x+\frac{1}{x}]$ $[x-\frac{1}{x}] + [-x+\frac{1}{x}]$ $x-\frac{1}{x} \in \mathbb{Z}$ $D_f = \{x \mid x \in \mathbb{Z} = k + \frac{1}{k}, k \in \mathbb{Z}\}$
الف) $y = \frac{x}{\sin x - 1}$ $\sin x - 1 \neq 0$ $\sin x \neq 1$ $D_f = \{2k\pi + \frac{\pi}{2}\}$	ب) $y = \frac{x}{\sqrt{\sin^2 x - 1}}$ $\sqrt{\sin^2 x - 1} \neq 0$ $\sqrt{\sin^2 x} \neq 1$ $\sin^2 x \neq 1$ $\sin x \neq \pm 1$ $D_f = \{R - \{k\pi \pm \frac{\pi}{2}\}\}$

$\text{a)} y = \sqrt{1 + \sin x - 1}$ $1 + \sin x - 1 \geq 0$ $\sin x \geq \frac{1}{2}$  $D_f = \left[\frac{\pi}{6} + 2k\pi, \frac{5\pi}{6} + 2k\pi \right]$	$\text{b)} y = \sqrt{\cos x - 1}$ $\cos x - 1 \geq 0$ $\cos x \leq 1$  $D_f = \mathbb{R}$
$\text{a)} \cos y = x + 5 $ $-1 \leq x + 5 \leq 1$ $-1 \leq x + 5 \leq 1$ $-6 \leq x \leq -4$ $D_f = [-6, -4]$	$\text{b)} y = \arcsin(x^2 + 2x + 1)$ $-1 \leq x^2 + 2x + 1 \leq 1$ $D_f = (-\infty, -1] \cup [1, +\infty)$ $\rightarrow x^2 + 2x + 1 \geq 1$ $x^2 + 2x \geq 0$ $x(x + 2) \geq 0$ $x \leq -2$ or $x \geq 0$ $\rightarrow x^2 + 2x + 1 \leq 1$ $x^2 + 2x \leq 0$ $x(x + 2) \leq 0$ $-2 \leq x \leq 0$ $D_f = (-\infty, -2] \cup [0, +\infty)$
$\text{a)} y = \sqrt{x - \log_p(x - 1)}$ $x - \log_p(x - 1) \geq 0$ $\log_p(x - 1) \leq x - 1 \rightarrow x - 1 \leq 1 \rightarrow x \leq 2$ $x - 1 > 0$ $x > 1$ $D_f = (1, 2]$	$\text{b)} y = \log(x^2 - x)$ $x^2 - x > 0$ $x(x - 1) > 0$ $x < 0$ or $x > 1$ $D_f = (-\infty, 0) \cup (1, +\infty)$
$\text{a)} y = \frac{x}{e^x + 1}$ $e^x \neq -1 \rightarrow x \neq -1$ $D_f = \mathbb{R}$	$\text{b)} y = \frac{x}{e^x - 1}$ $e^x - 1 \neq 0 \rightarrow e^x \neq 1 \rightarrow x \neq 0$ $D_f = \mathbb{R} - \{0\}$
$\text{a)} y = \frac{x}{e^x - 1}$ $e^x - 1 \neq 0 \rightarrow e^x \neq 1 \rightarrow x \neq 0$ $D_f = \mathbb{R} - \{0\}$	$\text{b)} y = \frac{x}{e^x - 1}$ $e^x - 1 \neq 0 \rightarrow e^x \neq 1 \rightarrow x \neq 0$ $D_f = \mathbb{R} - \{0\}$
$\text{a)} y = (x + 1)!$ $x + 1 \in \mathbb{N}$ $\frac{x + 1}{1} \in \mathbb{N}$ $x \in \mathbb{N} - 1$ $D_f = \{x \mid x = k - 1, k \in \mathbb{N}\}$	$\text{b)} y = \left(\frac{x - 1}{x - a} \right)!$ $\frac{x - 1}{x - a} \in \mathbb{N} \rightarrow x - 1 \in \mathbb{N}(x - a)$ $x - 1 = \mathbb{N}(x - a) \rightarrow x = \frac{1 - a\mathbb{N}}{1 - \mathbb{N}}$ $D_f = \left\{ x \mid x = \frac{1 - a k}{1 - k}, k \in \mathbb{N} \right\}$