

P

Date :

الف) $y = \frac{\sin x - 2}{2 \cos x + 1}$ $2 \cos x + 1 \neq 0 \Rightarrow \cos x \neq -\frac{1}{2}$ (1)

$D_f = \mathbb{R} - \left\{ 2k\pi + \frac{4}{3}\pi, 2k\pi + \frac{2}{3}\pi \right\}$

ب) $y = \frac{\sin x + 2}{\cos x - 1}$ $\cos x \neq 1$

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

الف) $y = \frac{2 \sin x + 1}{\tan x + 1} \rightarrow \frac{2 \sin x + 1}{\frac{\sin x}{\cos x} + 1}$ $\cos x \neq 0$ (2)
 $\frac{\sin x}{\cos x} + 1 \neq 0 \rightarrow \frac{\sin x + \cos x}{\cos x} \neq 0 \rightarrow \sin x + \cos x \neq 0$

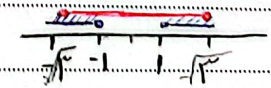
$D_f = \mathbb{R} - \left\{ k\pi - \frac{\pi}{4}, k\pi + \frac{3\pi}{4} \right\}$

ب) $y = \frac{\cos x + 1}{\cot x - 1} \rightarrow \frac{\cos x + 1}{\frac{\cos x - 1}{\sin x}}$ $\sin x \neq 0$
 $\frac{\cos x - 1}{\sin x} \neq 0 \Rightarrow \cos x \neq 1$

$D_f = \mathbb{R} - \{k\pi, k\pi + \pi\}$

الف) $\sin y = x - 2$ $-1 \leq x - 2 \leq 1 \Rightarrow -1 \leq x \leq 3$ (3)
 $x \geq 1, x \leq -1$

$D_f = [-\sqrt{3}, -1] \cup [1, \sqrt{3}]$



$$\rightarrow y = \arccos(\sqrt{x}-2) \quad -1 \leq \sqrt{x}-2 \leq 1 \rightarrow 1 \leq \sqrt{x} \leq 3$$

$$\rightarrow 1 \leq x \leq 9$$

$$D_f = [1, 9]$$

$$\text{الف) } \cos y = |x|-2 \quad -1 \leq |x|-2 \leq 1 \rightarrow 1 \leq |x| \leq 3 \quad \textcircled{4}$$

$$\begin{cases} -3 \leq x \leq -1 \\ 1 \leq x \leq 3 \end{cases}$$

$$D_f = [-3, -1] \cup [1, 3]$$

$$\rightarrow y = \arcsin(x^2+3x+1) \quad -1 \leq x^2+3x+1 \leq 1$$

$$\textcircled{I} \quad \begin{array}{c} -1 \\ + \end{array} \quad \begin{array}{c} 0 \\ - \end{array} \quad \begin{array}{c} + \\ - \end{array} \quad \begin{array}{c} - \\ + \end{array} \quad \begin{array}{c} + \\ - \end{array} \quad \begin{array}{c} - \\ + \end{array} \quad \begin{array}{c} + \\ - \end{array} \quad \begin{array}{c} - \\ + \end{array} \quad \begin{array}{c} + \\ - \end{array} \quad \begin{array}{c} - \\ + \end{array}$$

$$D_f = [-3, 0] \cap ((-\infty, -2] \cup [-1, \infty)) = [-3, -2] \cup [-1, 0]$$

$$\text{الف) } y = \log_2(x^2-4) \quad x^2-4 > 0 \rightarrow x^2 > 4 \rightarrow x > 2, x < -2 \quad \textcircled{5}$$

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

$$\rightarrow y = \log_2|x-2| \quad |x-2| > 0 \rightarrow |x| < 2 \rightarrow -2 < x < 2$$

$$D_f = (-2, 2)$$

1. $y = \log_{x-3} \omega - x$ $\omega - x > 0 \rightarrow x < \omega$ (✓)
 $x - 3 > 0 \rightarrow x > 3, x - 3 \neq 1 \rightarrow x \neq 4$

2.
 3. $D_f = (3, \omega) - \{4\}$

4.
 5. $y = \log_{x+3} x^2 - 1$ $x^2 - 1 > 0 \rightarrow x^2 > 1 \rightarrow x > 1, x < -1$
 $x + 3 > 0 \rightarrow x > -3, x + 3 \neq 1 \rightarrow x \neq -2$

6.
 7. $D_f = (-3, -1) \cup (1, +\infty) - \{-2\}$

8.
 9. $y = \log_{x-3} \frac{x^2 - 5x + 3}{x-3}$ $x - 3 \neq 0 \rightarrow x \neq 3$ (✓)
 $\frac{x^2 - 5x + 3}{x-3} > 0$ $\frac{1}{- \phi} + \frac{x^2}{\phi^2 +}$

10.
 11. $D_f = (1, +\infty) - \{3\}$

12.
 13. $y = \log_{x+5} \frac{x+3}{x-3}$ $x + 5 \neq 0 \rightarrow x \neq -5, x + 5 > 1 \rightarrow x > -4$
 $\frac{x+3}{x-3} > 0$ $\frac{-3}{+ \phi} - \frac{3}{- \phi} + (-\infty, -3] \cup (3, +\infty)$

14.
 15. $D_f = (-5, -3) \cup (3, +\infty) - \{-4\}$

16.
 17. $y = \sqrt{2 - \log_r(x-2)}$ $x - 2 > 0 \rightarrow x > 2$ (Δ)
 $2 - \log_r(x-2) \geq 0 \rightarrow \log_r(x-2) \leq 2$

18.
 19. $D_f = (2, 16]$ $\rightarrow x - 2 \leq 16 \rightarrow x \leq 18$

$$\rightarrow y = \log(r \log_r x - 1) \quad x > 0 \text{ I } r \log_r x - 1 > 0 \rightarrow \log_r x > \frac{1}{r} \\ \rightarrow x > r^{\frac{1}{r}} \text{ II}$$

$$D_f = I \cap \text{II} = (r^{\frac{1}{r}}, +\infty)$$

$$\text{الف) } y = \frac{r}{r^x + 1} \quad r^x + 1 \neq 0 \rightarrow r^x \neq -1 \quad \checkmark \text{ قابل } \textcircled{9}$$

$$D_f = \mathbb{R}$$

$$\rightarrow y = \frac{r}{r^x - 1} \quad r^x - 1 \neq 0 \rightarrow r^x \neq 1 \rightarrow x \neq 0$$

$$D_f = \mathbb{R} - \{0\}$$

$$\text{ج) } y = \frac{r}{r^x - r} \quad r^x - r \neq 0 \rightarrow r^x \neq r \rightarrow x \neq \log_r r$$

$$D_f = \mathbb{R} - \{\log_r r\}$$

$$\rightarrow y = \frac{r}{r^x - r} \quad r^x - r \neq 0 \rightarrow r^x \neq r \rightarrow x \neq \log_r r$$

$$D_f = \mathbb{R} - \{\log_r r\}$$

1 $y = (x+1)!$ $x+1 \in \mathbb{N} \rightarrow x \in \frac{\mathbb{N}-1}{f}$ (10)

2

3 $D_f = \{x \mid x = \frac{k-1}{f}, k \in \mathbb{N}\}$

4

5 $\rightarrow y = \left(\frac{rx-r}{r-x-\omega}\right)!$ $\frac{rx-r}{r-x-\omega} \in \mathbb{N} \rightarrow rx-r \in rx-\omega$

6

$\rightarrow rx - rxw \in r - \omega$

7 $D_f = \{x \mid x = \frac{r-\omega k}{r-rk}, k \in \mathbb{N}\}$ $\rightarrow x(r-rw) \in r - \omega$

8

$\rightarrow x \in \frac{r-\omega}{r-rw}$

9

10

11

12