

سینا معنی

$$y = \sqrt{\frac{x^2 - 4x}{x^3 - x}} \quad x^3 - x \neq 0 \quad x^3 \neq x \quad \boxed{x \neq 0, 1, -1} \quad (1)$$

$$\frac{x^2 - 4x}{x^3 - x} \gg 0 \Rightarrow x^2 - 4x \gg 0 \quad x^2 \gg 4x \Rightarrow \boxed{x \gg 4}$$

$$D_f = [4, +\infty)$$

$$y = \sqrt{\frac{x^0 - x^2}{x^3 - x}} \quad x^3 - x \neq 0 \quad x \neq 0, 1, -1$$

$$\frac{x^0 - x^2}{x^3 - x} \gg 0 \Rightarrow x^0 - x^2 \gg 0 \Rightarrow x^0 \gg x^2 \Rightarrow x^2 \gg 1$$

$$\Rightarrow x \neq 0 \Rightarrow D_f = \mathbb{Z} - \{0, 1, -1\}$$

$$y = \frac{x+1}{\sqrt{x+|x|}} \quad x+|x| > 0 \Rightarrow D_f = \mathbb{R}^+$$

$$y = \frac{1}{\sqrt{x|x|}} \quad x|x| > 0 \quad \begin{matrix} \oplus \checkmark \\ \ominus \times \\ \oplus \times \end{matrix} \quad D_f = \mathbb{R}^+$$

$$y = \sqrt{2 - [x]} \quad 2 - [x] \gg 0 \Rightarrow 2 \gg [x]$$

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

$$y = \frac{1}{\sqrt{2 - [x]}} \quad 2 - [x] > 0 \Rightarrow 2 > [x] \quad D_f = (-\infty, 2)$$

⑤

$$y = \sqrt{\left[x - \frac{1}{p}\right] + \left[x + \frac{1}{p}\right]}$$

$$\left[x - \frac{1}{p}\right] + \left[x + \frac{1}{p}\right] \geq 0 \Rightarrow \left[x - \frac{1}{p} - 1\right] + \left[x + \frac{1}{p}\right] \geq 0$$

$$\left[x + \frac{1}{p}\right] - 1 + \left[x + \frac{1}{p}\right] \geq 0 \Rightarrow 2\left[x + \frac{1}{p}\right] \geq 1 \Rightarrow \left[x + \frac{1}{p}\right] \geq \frac{1}{2}$$

$$x + \frac{1}{p} \geq 1 \Rightarrow x \geq 1 - \frac{1}{p} \Rightarrow D_f = \left[1 - \frac{1}{p}, +\infty\right)$$

$$y = \sqrt{\left[x - \frac{1}{p}\right] + \left[-x + \frac{1}{p}\right]}$$

$$\sqrt{\left[x - \frac{1}{p}\right] + \left[-\left(x - \frac{1}{p}\right)\right]} \longrightarrow \begin{cases} a \in \mathbb{Z} & [a] + [-a] = 0 \\ a \notin \mathbb{Z} & [a] + [-a] = -1 \end{cases}$$

$$x - \frac{1}{p} \in \mathbb{Z} \Rightarrow D_f = \left\{x \mid x = p + \frac{1}{p}, p \in \mathbb{Z}\right\}$$

⑥

$$y = \frac{1}{\sin^2 x - 1}$$

$$\sin^2 x - 1 \neq 0 \Rightarrow \sin^2 x \neq 1$$

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

$$y = \frac{1}{\sin^2 x - 1}$$

$$\sin^2 x - 1 \neq 0 \Rightarrow \sin^2 x \neq 1 \Rightarrow \sin^2 x \neq \frac{1}{2}$$

$$\Rightarrow \sin x \neq \pm \frac{\sqrt{2}}{2} \Rightarrow D_f = \mathbb{R} - \left\{k\pi \pm \frac{\pi}{4}\right\}$$

$$y = \sqrt{x \sin x - 1}$$

$$x \sin x - 1 \geq 0 \Rightarrow x \sin x \geq 1 \Rightarrow \sin x \geq \frac{1}{x} \quad (4)$$

$$D_f = \left[2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right]$$

$$y = \sqrt{\cos x - 1}$$

$$\cos x - 1 \geq 0 \Rightarrow \cos x \geq 1$$

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

$$\cos y = |x| - 3$$

$$-1 \leq |x| - 3 \leq 1$$

$$D_f = [-\pi, \pi]$$

$$|x| - 3 \leq 1 \Rightarrow |x| \leq 4$$

$$-1 \leq |x| - 3 \Rightarrow 2 \leq |x| \Rightarrow 2 \leq |x| \leq 4$$

$$y = \arcsin(x^2 + 3x + 1) \rightarrow D_f = [-3, -2] \cup [-1, 0]$$

$$y = \sqrt{x - \log_w(x-2)}$$

$$x - 2 \geq 0$$

$$x \geq 2$$

$$D_f = (2, 11]$$

$$x - \log_w(x-2) \geq 0$$

$$\log_w(x-2) \leq x$$

$$2 < x \leq 11$$

$$x - 2 \leq 9 \Rightarrow x \leq 11$$

شماره

$$y = \log(x^p - x)$$

$$x^p - x > 0 \Rightarrow x^p > x \Rightarrow x \neq 0, 1, -1, \dots$$

$$D_f = \mathbb{R} - [-\infty, 1]$$

$$g = \frac{p}{f^x + 1}$$

$$f^x + 1 \neq 0$$

$$D_f = \mathbb{R} - \{\log_f^{-1}\}$$

(9)

$$f^x \neq -1$$

$$f^x = -1 \Rightarrow \log_f^{-1} = x \quad D_f = \mathbb{R}$$

$$g = \frac{p}{f^x - 1}$$

$$f^x - 1 \neq 0$$

$$D_f = \mathbb{R} - \{\log_f^{-1}\}$$

$$f^x \neq 1$$

$$f^x = 1 \Rightarrow \log_f^{-1}$$

$$g = \frac{p}{f^x - p}$$

$$f^x - p \neq 0 \Rightarrow f^x \neq p$$

$$D_f = \mathbb{R} - \{\log_f^p\}$$

$$f^x = p \Rightarrow \log_f^p$$

$$g = \frac{p}{f^x - p}$$

$$f^x - p \neq 0$$

$$D_f = \mathbb{R} - \{\log_f^p\}$$

$$f^x \neq p$$

$$f^x = p \Rightarrow \log_f^p$$

$$y = (f^x + 1)!$$

$$f^{x+1} \in \mathbb{W} \Rightarrow f^x \in \mathbb{W} - 1 \Rightarrow x \in \frac{\mathbb{W} - 1}{f}$$

(10)

$$y = \left(\frac{f^x - p}{f^x - a} \right)!$$

$$\frac{f^x - p}{f^x - a} \in \mathbb{W} \Rightarrow \frac{f^x - a}{f^x - p} \in \mathbb{W} \Rightarrow \frac{f^x - a}{f^x - p} \in \mathbb{W} \Rightarrow \frac{f^x - a}{f^x - p} \in \mathbb{W}$$

$$x \in \frac{\mathbb{W}(f^x - a) + p}{f}$$

PILLNOTEBOOK