

سینا معنی

1f, v5

$$y = \sqrt{\frac{x^2 - 4x}{x^3 - x}}$$

$$x^3 - x \neq 0 \quad x^3 \neq x$$

$$x \neq 0, 1, -1$$

(1)

$$\frac{-1 \quad 0 \quad 1 \quad 4}{-\frac{1}{4} + \frac{1}{4} + \frac{1}{4} - \frac{1}{4} +}$$

$$\frac{x^2 - 4x}{x^3 - x} \geq 0 \Rightarrow x^2 - 4x \geq 0$$

$$x^2 \geq 4x \Rightarrow x \geq 4$$

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

$$D_y = (-1, 0) \cup (0, 1) \cup [4, +\infty)$$

$$y = \sqrt{\frac{x^2 - x^4}{x^3 - x}} \geq 0$$

$$x^3 - x \neq 0 \quad x \neq 0, 1, -1$$

$$\frac{-1 \quad 0 \quad 1}{+\frac{1}{4} + \frac{1}{4} + \frac{1}{4} +}$$

$$\frac{x^2 - x^4}{x^3 - x} \geq 0 \Rightarrow x^2 - x^4 \geq 0 \Rightarrow x^2 \geq x^4 \Rightarrow x^2 \geq 1$$

$$R = \{-1, 0, 1\}$$

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

(2)

$$y = \frac{x+1}{\sqrt{x+|x|}}$$

$$x+|x| > 0 \Rightarrow D_f = \mathbb{R}^+$$

$$y = \frac{1}{\sqrt{x|x|}}$$

$$x|x| > 0$$

$$D_f = \mathbb{R}^+$$

(3)

$$y = \sqrt{r - [x]}$$

$$r - [x] \geq 0 \Rightarrow r \geq [x]$$

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

$$y = \frac{1}{\sqrt{r - [x]}}$$

$$r - [x] > 0 \Rightarrow r > [x]$$

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

①

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

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

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

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

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

②

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

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

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

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

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

③ ✓

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

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

$$\Rightarrow \sin x \neq \pm 1 \Rightarrow D_f = \mathbb{R} - \left\{k\pi \pm \frac{\pi}{2}\right\}$$

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

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

1.5

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

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

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

$$D_f = \{ 2k\pi \}$$

(4)

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

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

$$[-2, -1] \cup [1, 2]$$

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

$$D_f = [-4, 4]$$

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

(1)

$$y = \arcsin(x^2 + 3x + 1)$$

$$D_f = [-2, -1] \cup [-1, 0]$$

$$-1 \leq x^2 + 3x + 1 \leq 1$$

$$x^2 + 3x + 1 \geq 0 \Rightarrow \frac{-3 \pm \sqrt{5}}{2}$$

$$x^2 + 3x + 1 \leq 0 \Rightarrow \frac{-3 \pm \sqrt{5}}{2}$$

$$y = \sqrt{x - \log_2(x-2)}$$

$$x - 2 \geq 0$$

$$x \geq 2$$

(A)

$$D_f = (2, 11]$$

$$x - \log_2(x-2) \geq 0$$

$$\log_2(x-2) \leq x$$

$$2 \leq x \leq 11$$

(1)

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

شماره

$$y = \log(x^2 - x)$$

$$x^2 - x > 0 \Rightarrow x^2 > x \Rightarrow x \neq 0, 1, -1, -2, -3, \dots$$

$$n(n-1)(n+1) > 0$$

$$D_f = \mathbb{R} - [-\infty, 1] \\ (-1, 0) \cup (1, +\infty)$$

$$\begin{array}{ccccccc} & -1 & & 0 & & 1 & \\ - & + & - & + & - & + & \end{array}$$

$$y = \frac{x}{x^2 + 1}$$

$$x^2 + 1 \neq 0$$

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

$$x^2 \neq -1$$

$$x^2 = -1 \Rightarrow \log_f^{-1} = x$$

$$D_f = \mathbb{R}$$

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

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

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

$$x^2 \neq 1$$

$$x^2 = 1 \Rightarrow \log_f^{-1}$$

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

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

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

$$x^2 = x \Rightarrow \log_f^{-1}$$

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

$$x^2 - x \neq 0$$

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

$$x^2 \neq x$$

$$x^2 = x \Rightarrow \log_f^{-1}$$

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

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

$$D_y = \{x \mid x = \frac{k-1}{f}, k \in \mathbb{W}\}$$

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

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

$$n \in \frac{\mathbb{W}-f}{f(x)-f}$$

$$\rightarrow D_y = \{x \mid x = \frac{k-f}{f(x)-f}, k \in \mathbb{W}\}$$

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

PILLNOTEBOOK