

$$f(x) = \sqrt{(a-x)x^2+ax+b} \quad a-x \geq 0 \quad a=x \quad x \geq b \geq 0 \quad [+\infty, +\infty) \text{ ! } b \text{ (1)}$$

$$x(-x) + b = 0 \quad b = 0$$

$$f(x) = \sqrt{x^2 + 2x + 1} \quad \mathbb{R} \quad \Delta \leq 0 \quad b^2 - 4ac$$

$$f = \varepsilon x + (1 - m^2) \quad \varepsilon = 1 + \varepsilon m^2 \quad \varepsilon = -2 + \varepsilon m^2 (-1 + m^2) \quad (2)$$

$$1 - (-1) = +2 \quad \text{موجب} \quad m^2 < 1 \quad f = \varepsilon x + (1 - m^2) < 0 \quad f = 1 + \varepsilon m^2 < 0 \quad \varepsilon m^2 - \varepsilon < 0 \quad m^2 - 1 < 0 \quad m^2 < 1 \quad -1 \leq m \leq +1$$

$$f(x) = \frac{\sqrt{x - x^2}}{[x] + [-x] + 1} \quad \text{نقطة صفر} \quad \mathbb{R} \rightarrow x = -1 \text{ و } 0 \quad x - x^2 \geq 0 \quad \varepsilon > 0 \quad -x \leq x \leq x \quad (3)$$

$$D_f = \{x, -1, 0, 1, x\}$$

موجب

$$f(x) = \sqrt{x^2 + 1} \quad x^2 (x+1) \geq 0 \quad \frac{x}{0} \quad \frac{-x}{-1} \quad \frac{x}{1} \quad D_f = [-1, +\infty) \quad (4)$$

$$y = \sqrt{\frac{(x^2-1)(x^2-4x^2)}{x^2-1}} \Rightarrow 0 \quad \frac{(x-1)(x+1)x^2(x-2)}{(x-1)(x^2-x+1)} \geq 0 \quad \frac{x}{0} \quad \frac{-1}{-1} \quad \frac{x}{1} \quad \frac{x}{1} \quad \frac{x}{1}$$

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

$$f(x) = \sqrt{|x-1|-x} \geq 0 \quad |x-1| \geq x \quad x^2 - 2x + \varepsilon \geq 0 \quad x^2 - 2x - 1 \geq 0 \quad (5)$$

$$(x+1)(x-1) \geq 0 \quad \frac{x}{0} \quad \frac{-1}{-1} \quad \frac{x}{1} \quad (-\infty, -1] \cup [1, +\infty)$$

$$y = \sqrt{x - |x-1|} \geq 0 \quad x - |x-1| \geq 0 \quad x \geq |x-1| \quad -2 \leq x-1 \leq 2 \quad -4 \leq x \leq 4 \quad D_f = [-2, 2]$$

$$f(x) = \sqrt{1-x|x|} \geq 0 \quad |x| \leq 1 \quad x \leq 1 \quad D_f = (-\infty, 1) \quad (6)$$

$$x \geq 0 \quad x^2 \leq 1 \quad 0 \leq x \leq 1 \quad x \leq 0 \quad -x^2 \leq 1 \quad x^2 \leq 1 \quad x \leq -1 \text{ or } x \geq 1$$

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موجب

$$y = \frac{1}{\sqrt{1-x-\omega}-1}$$

$$1-x-\omega > 0 \quad x > |x-\omega| \quad -x \leq x-\omega \leq 1-x$$

$$x \leq x \leq 1$$

$$\sqrt{1-x-\omega} \neq 1 \Rightarrow x \neq 1$$

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

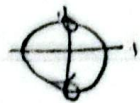
$$D_f = [1, \infty) - \{1, 0\}$$

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

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

$$\cos x \neq 0$$

$$D_f = 1R - \{k\pi + \frac{\pi}{2}\}$$



(1)

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

$$x \cos x - 1 \neq 0$$

$$x \cos x \neq 1$$

$$\cos x \neq \frac{1}{x}$$



$$D_f = 1R - \{x \mid x \cos x = 1\}$$

$$y = \frac{x+p}{|x+p| - |x+1|}$$

$$|x+p| - |x+1| \neq 0$$

$$|x+p| \neq |x+1|$$

(2)

$$x^p + x + 1 \neq x^p + 4x + 9 \quad (x^p - 2x - 8) \neq 0$$

$$x^p - 2x - 8 \neq 0 \quad (x-4)(x+2) \neq 0 \Rightarrow x \neq 4, x \neq -2$$

$$1R - \{4, -2\}$$

$$y = \sqrt{|x+1| - |x+p|} \geq 0 \quad |x+1| \geq |x+p|$$

$$x^p + 1 + \leq x \geq x^p + 4x + 9 \quad (x^p - 2x - 8) \geq 0 \quad (3)$$

$$x^p - 2x - 8 \geq 0 \quad (x-4)(x+2) \geq 0 \Rightarrow (x-4)(x+2) \geq 0$$

$$D_f = (-\infty, -2] \cup [4, \infty)$$

$$f(x) = \sqrt{\log_{\frac{1}{e}} \log_{\frac{1}{e}} (x-1)}$$

$$\log_{\frac{1}{e}} (x-1) > 0 \quad x-1 > 1 \quad x > 2$$

(4)

$$\log_{\frac{1}{e}} (x-1) > 0 \quad x-1 > 1 \quad x > 2$$

$$\log_{\frac{1}{e}} (x-1) > 0 \quad x-1 > 1 \quad x > 2$$

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

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Date:

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$$\text{a) } y = \log(r \cos \alpha + 1) \quad r \cos \alpha + 1 > 0 \quad r \cos \alpha > -1 \quad \cos \alpha > -\frac{1}{r} \quad (10)$$

$$D_f = (r \cos \alpha - \frac{1}{r}, r \cos \alpha + \frac{1}{r})$$



$$\text{b) } y = \sqrt{\log \frac{x-1}{x+1}} \quad \frac{x-1}{x+1} > 0 \quad \frac{x-1}{x+1} > 1 \quad \frac{x-1}{x+1} - 1 > 0 \quad \frac{x-x-1-1}{x+1} > 0 \quad D_f = (-\infty, -1) \cup (1, +\infty) \quad (1)$$

$$\text{c) } \log \frac{x-1}{x+1} > 0 \quad \frac{x-1}{x+1} > 1 \quad \frac{x-1}{x+1} - 1 > 0 \quad \frac{x-x-1-1}{x+1} > 0$$

$$\frac{-2}{x+1} > 0 \quad x < -1 \quad (-\infty, -1) \quad (2)$$

المجال
المعرّف
لـ $y = \log \frac{x-1}{x+1}$

$$D_f = \mathbb{R} \rightarrow (-\infty, -1)$$

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