

محل های تابع - ۱۳۹۵ - ۱۳۹۶ - ۱۳۹۷ - ۱۳۹۸ - ۱۳۹۹

$$-\infty < x < \infty \Rightarrow \text{محل های تابع} \Rightarrow a - x > 0 \Rightarrow a > x$$

$$\Rightarrow x < a \xrightarrow{x < c} x < b < 0 \Rightarrow b < -x$$

$$\Rightarrow x^2 + x + 1 - m^2 \rightarrow \text{محل های تابع}$$

$$\Rightarrow 0 \leq 0 \Rightarrow x - 1 + x m^2 \leq 0 \Rightarrow x(m^2 - 1) \leq 0 \Rightarrow m^2 - 1 < 0 \Rightarrow -1 \leq m \leq 1$$

$$\Rightarrow 1 - (-1) \leq x$$

$$x - m^2 \geq 0 \Rightarrow x \geq m^2 \Rightarrow -1 \leq x \leq 1$$

$$[x] \neq 0 \Rightarrow [-x] \neq 0 \rightarrow \dots \rightarrow x \in \mathbb{Z} \Rightarrow x \in \{-2, -1, 0, 1, 2\}$$

$$\text{حل) } y = \sqrt{x^2 + c} \Rightarrow x^2(x + c) \geq 0 \Rightarrow \frac{-c}{-1 \pm 1} \Rightarrow P_f = [-c, \infty)$$

$$\therefore y = \sqrt{\frac{(x^2 - 1)(x^2 - c x^2)}{x^2 - 1}} = \sqrt{\frac{(x - 1)(x + 1)(x - c)x^2}{(x - 1)(x^2 + x + 1)}} \Rightarrow \frac{-1}{0} \quad \frac{0}{-1} \quad \frac{1}{0} \quad \frac{c}{1} \Rightarrow P_f = (-\infty, -1) \cup \{0\} \cup [c, \infty)$$

$$\text{حل) } y = \sqrt{|x - 1| - c} \Rightarrow |x - 1| - c \geq 0 \Rightarrow |x - 1| \geq c \Rightarrow x - 1 \geq c \Rightarrow x \geq c + 1 \quad \vee \quad x - 1 \leq -c \Rightarrow x \leq -1 \Rightarrow P_f = (-\infty, -1] \cup [c + 1, \infty)$$

$$\therefore y = \sqrt{4 - |x - 1|} \Rightarrow |x - 1| \leq 4 \Rightarrow -4 \leq x - 1 \leq 4 \Rightarrow 4 \geq x \geq -1 \Rightarrow P_f = [-1, 4]$$

$$\text{حل) } y = \sqrt{1 - x|x|} \Rightarrow x|x| \leq 1 \Rightarrow \begin{cases} x \leq 0 \Rightarrow -x^2 \leq 1 \Rightarrow \text{محل های تابع} \\ x > 0 \Rightarrow x^2 \leq 1 \Rightarrow -1 \leq x \leq 1 \Rightarrow 0 < x \leq 1 \end{cases} \Rightarrow P_f = (-\infty, 1]$$

$$\therefore y = \frac{1}{\sqrt{c - |x - 1|} - 1} \Rightarrow |x - 1| \leq c \Rightarrow -c \leq x - 1 \leq c \Rightarrow 1 - c \leq x \leq 1 + c \Rightarrow \sqrt{c - |x - 1|} \neq 1 \Rightarrow c - |x - 1| \neq 1 \Rightarrow x \neq 1 \pm \sqrt{c - 1} \Rightarrow P_f = [1 - c, 1 + c] \setminus \{1 \pm \sqrt{c - 1}\}$$

$$a) y = \frac{\sin^2 x - 1}{\cos x} \Rightarrow \cos x \neq 0 \Rightarrow D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}$$

-v

$$b) y = \frac{\cos x}{1 + \cos x} \Rightarrow \cos x \neq -1 \Rightarrow D_f = \mathbb{R} - \{x \text{ s.t. } D_c \text{ s.t. } 1 + \cos x = 0\}$$

$$a) y = \frac{x^2}{|x+1| - |x-1|} \Rightarrow |x+1| \neq |x-1|$$

-1

$$\Rightarrow x^2 - (x+1)^2 \neq x^2 - (x-1)^2 \Rightarrow (x^2 - x^2 - 2x - 1) \neq (x^2 - x^2 + 2x - 1) \neq 0$$

$$\Rightarrow -2x - 1 \neq 2x - 1 \Rightarrow -4x \neq 0$$

$$\Rightarrow x \neq -\frac{1}{2} \Rightarrow D_f = \mathbb{R} - \{-\frac{1}{2}\}$$

$$b) y = \sqrt{|x+1| - |x-1|} \Rightarrow |x+1| \geq |x-1| \Rightarrow x^2 + 2x + 1 \geq x^2 - 2x + 1$$

$$\Rightarrow 4x \geq 0 \Rightarrow x \geq 0 \Rightarrow D_f = [0, \infty)$$

$$x-1 > 0 \Rightarrow x > 1 \Rightarrow x > 0$$

$$\log(x-1) > 0 \Rightarrow x-1 > 1 \Rightarrow x > 2$$

$$\log(x-1) < 1 \Rightarrow x-1 < 10 \Rightarrow x < 11$$

$$\log(x-1) \leq 1 \Rightarrow x-1 \leq 10 \Rightarrow x \leq 11$$

$$D_f = (1, \infty)$$

-9

$$a) y = \log(1 + \cos x) \Rightarrow 1 + \cos x > 0 \Rightarrow \cos x > -1 \Rightarrow$$

-10

$$D_f = (k\pi - \frac{\pi}{2}, k\pi + \frac{\pi}{2})$$

$$b) y = \sqrt{\log \frac{x-1}{x+1}} \Rightarrow \frac{x-1}{x+1} > 0 \Rightarrow \frac{-1}{\frac{1}{x+1} - \frac{1}{x-1}} > 0$$

$$\Rightarrow \log \frac{x-1}{x+1} > 0 \Rightarrow \frac{x-1}{x+1} > 1 \Rightarrow \frac{x-1 - (x+1)}{x+1} > 0 \Rightarrow \frac{-2}{x+1} > 0 \Rightarrow x < -1$$

$$\Rightarrow D_f = (-\infty, -1)$$