

$$a = \begin{cases} y-1 & [y \geq 0] \\ -y & [y < 0] \end{cases} \quad \begin{cases} y-1 \geq -1 & [a \geq -1] \\ -y < -1 & [a < -1] \end{cases}$$



تابع است. بازه از هر یک متناهی است.

$$\sqrt{\frac{x \pm (a-r)}{f(x)}} \rightarrow \begin{matrix} \text{مخرج} \\ \text{مخرج} \end{matrix} : \begin{matrix} 0, -r, \text{و } V \\ -\frac{r}{x} + \frac{r}{x} - \frac{r}{x} + \frac{r}{x} - \frac{r}{x} + \frac{r}{x} \end{matrix}$$

$$D_f = (-r, r] \cup [0, r) \cup [r, +\infty)$$

$$a^2 - 4a \neq 0 \quad a(a^2 - 4) = a(a+r)(a-r) \neq 0$$

$$a = 0, -r, r \quad D_f = \mathbb{R} - \{-r, 0, r\}$$

$$g(a) = \sqrt{\frac{a^2 - 4a + r}{a^2 - 4a}} \geq 0 \quad \Delta = 4 - 4r = -4r \rightarrow \text{مخرج}$$

$$D_g = [-r, 0) \cup (r, +\infty)$$

$$\sqrt{\frac{a-r}{a^2 - 4a + r}} \rightarrow a = r$$

$$(a+r)(a-r) \leftarrow \begin{matrix} \text{مخرج} \\ \text{مخرج} \end{matrix} \rightarrow a = \pm r$$

$$D_g = (-r, +\infty) - \{r\}$$

$$f = r[-a] \neq 0 \quad -r[-a], -r \quad [-a], r \quad r \leq a < r \quad -r > a > -r$$

$$D_f = \mathbb{R} - (-r, -r]$$

$$\sqrt{\frac{a(a^2-1)}{a^2+1}} \rightarrow a(a+1)(a-1) \geq 0 \quad \begin{matrix} -1 & 0 & 1 \\ - & + & - \end{matrix} \quad [-1, 0] \cup [1, +\infty) \quad \text{الف (د)}$$

$$\sqrt{a^2+1} \rightarrow |a|+a > 0 \quad |a| > -a \rightarrow a > -a \rightarrow a \in (0, +\infty) \quad \text{ب (د)}$$

$$D_f = \text{الف} \cap \text{ب} = [1, +\infty)$$

$$|a-r| - a^2 \geq 0 \quad |a-r| > a^2 \rightarrow \begin{matrix} a-r > a^2 \rightarrow a^2 - a + r \leq 0 \quad \text{①} \\ a-r \leq -a^2 \rightarrow a^2 + a - r \leq 0 \quad \text{②} \end{matrix}$$

$$\text{①} \rightarrow \Delta = 1 - 4r = -4r \rightarrow \text{مخرج} \rightarrow \emptyset$$

$$\text{②} \rightarrow (a+r)(a-1) \leq 0 \rightarrow a \in [-r, 1] \quad D_f = [-r, 1]$$

$$y = \sqrt{(a-r)(a-r)} \quad (a-r)(a-r) \geq 0 \quad + \frac{r}{\phi} \frac{r}{\phi} + \quad D_y = \mathbb{R} \quad (4)$$

$a: r \quad r < a < r$

$$y = \sqrt{|a+1|(a-r)} \quad -\frac{1}{\phi} - \frac{r}{\phi} \frac{r}{\phi} + \quad D_y = [r, +\infty) \cup \{1\} \quad (5)$$

$a: 1 \quad r < a < r$

$$y = \frac{1}{|a+1|-1-k} \quad |x-r|-1-k \geq 0 \quad |a+1|-1=k \quad (6)$$

$$|a-r|-1 \geq k \quad |a-r| \geq k+1 \quad a-r \geq k+1 \quad a-r \geq -k-1$$

$$|a+1|-1 = -k \quad |a-r| \geq 1-k \quad a-r \geq 1-k \quad a-r \geq k-1$$

$$\begin{aligned} a &\geq k+r \quad (1) \\ a &\geq -k+1 \quad (2) \\ a &\geq -k+r \quad (3) \\ a &\geq k+1 \quad (4) \end{aligned} \rightarrow \text{مقادير مختلفه } a \rightarrow k=1$$

$$f(a) = \frac{\frac{a^r + r a + r}{a^r + r a + r}}{\frac{a+1}{a-1}} \quad a^r + r a + r = 0 \rightarrow (a+1)(a+r) = 0 \quad a = -1, -1$$

$$a+1 \geq 0 \rightarrow a \geq -1 \quad n = r$$

$$x^r - 4a + 9 = 0 \quad (a-r)^r = 0 \rightarrow a = r$$

$\frac{r}{r} = 1$

$$y = \log \log \frac{1}{a} \quad \boxed{a > 0} \quad \boxed{a \neq 1} \quad \log \frac{1}{a} > 0 \rightarrow a < 1$$

$$a+1 > 0 \rightarrow \boxed{a > -1} \quad a+1 \neq 0 \rightarrow \boxed{a \neq -1}$$

$\log \frac{1}{a} > 0 \rightarrow -\log a > 0 \rightarrow \log a < 0 \rightarrow 0 < a < 1$

$$D_f(a) = [-1, r] \quad -1 \leq a < r \quad g(a) = f(r a^r - 1)$$

$$-1 \leq r a^r - 1 < r \quad -\frac{r}{r} \leq a^r \leq \frac{r}{r} \rightarrow 0 \leq a^r \leq \frac{r}{r} \rightarrow a \in \left[-\frac{r}{\sqrt[r]{r}}, \frac{r}{\sqrt[r]{r}}\right]$$