

برای حل این مسئله

از روش زیر استفاده می‌کنیم

با استفاده از

①

$$y-1 \geq 0 \sim y-1 \geq -1 \sim [-1, \infty)$$

$$-y \geq 1 \sim -y < -1 \sim (-\infty, -1)$$

مجموعه جواب

$$\frac{x f(x-r)}{f(x)} \geq 0 \leadsto$$

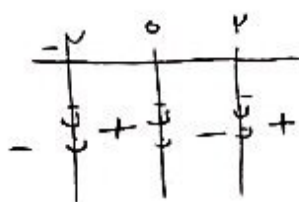
$-\infty$	$-r$	0	r	∞
+	-	+	-	+

$$D = (-\infty, -r) \cup [-r, r) \cup [r, \infty)$$

②

$$\frac{rx^r - rx + r}{x^r - \varepsilon x} \geq 0$$

$$D = (-r, 0) \cup (r, \infty)$$



$$\varepsilon - r[-x] \neq 0 \sim x = r[-x]$$

$$\leadsto [-x] \neq r$$

$$x \neq (-r, r) \leadsto D = \mathbb{R} - (-r, r)$$

③

$$x^r - rx \neq 0 \quad x(x^r - \varepsilon) \neq 0 \quad (x^r - \varepsilon) \neq 0 \quad \leadsto r, -r$$

$$D = \mathbb{R} - \{0, r, -r\}$$

$$\frac{x-r}{x^r - rx - 1} \geq 0 \quad (x^r - \varepsilon)(x^r + r)$$

$-\infty$	r	∞
-	+	+

$$D = (-r, \infty) - \{r\}$$

④

$$|x-r| - x^r \geq 0 \quad \begin{cases} x-r \geq x^r \leadsto D = \mathbb{R} \\ -x+r \geq x^r \leadsto D = [r, 1] \end{cases}$$

$$|x| \neq 1 \sim x \neq -1, 1$$

$$D = [r, 1) - \{\pm 1\}$$

$$x(x^r - 1) \geq 0 \quad \begin{cases} x > 0 \leadsto D = (0, \infty) \\ x < 0 \leadsto D = [-1, 0] \cup [1, \infty) \end{cases}$$

$$\leadsto D = [1, \infty)$$

$$1) |x-1| [x-1] \geq 0$$

$$\textcircled{1} \quad x \geq 1$$

$$D = [1, \infty) \cup \{1\}$$

$$D = \mathbb{R}$$

$$(x-1)[x-1] \geq 0 \quad (x-1)^2 \geq 0$$

$$\begin{array}{c|c|c} x & x-1 & \\ \hline + & 0 & + \end{array}$$

②

$$|x-1| = 1 - k \quad \begin{cases} x = 1 + k + 1 \\ x = k + 1 - 1 \end{cases}$$

$$1) -k+1 \quad 2) k+1 \quad 3) k+1 \quad \begin{cases} -k+1 \neq k+1 \\ k \neq 1 \end{cases} \quad \begin{cases} -k+1 \neq k+1 \\ k \neq 0 \end{cases} \quad \left. \vphantom{\begin{matrix} 1) \\ 2) \\ 3) \end{matrix}} \right\} \rightarrow k = \mathbb{Z} - \{0, 1\}$$

$$x > 0 \quad x \neq 1$$

$$x+1 > 0 \sim x > -1$$

$$x+1 \neq 1 \sim x \neq 0$$

$$\left. \vphantom{\begin{matrix} x > 0 \\ x+1 > 0 \\ x+1 \neq 1 \end{matrix}} \right\} \rightarrow D = (0, \infty) - \{1\}$$

③

حالی میں q, a عضو شمر

$$\frac{x^r + 1}{x^r + 1} \quad \left. \vphantom{\frac{x^r + 1}{x^r + 1}} \right\} \rightarrow (x+1)(x+1) \neq 0 \quad x \neq -1, -1$$

$$\frac{x^r + 1}{x^r + 1}$$

$$\frac{x+1}{x-1}$$

$$\rightarrow x \neq \pm 1$$

$$\left. \vphantom{\frac{x+1}{x-1}} \right\} \Rightarrow x \neq \{ \pm 1, -1 \} \quad x = 1 \sim x^2 - 1 = 0$$

$$(x-1)^2 = 0$$

$$-1 \leq x \leq 1 \sim 0 \leq x^2 \leq 1 \sim 1 \leq x^2 + 1 \leq 2$$

$$D = [1, 2]$$