

$$(a-r)x^r + ax + b \geq 0$$

①

$$\begin{array}{c|c} x & r \\ \hline p & - \quad 0 \quad + \end{array} \rightarrow \begin{array}{l} \boxed{a=r} \\ x+b \geq 0 \\ r+b=0 \quad \boxed{b=-r} \end{array}$$

②.

$$\textcircled{1} \rightarrow (x+1)^r \rightarrow x^r + rx + 1 \quad r - m^r = 1$$

$$m^r = 1 \quad m = \pm 1$$

$$+1 - (-1) = \textcircled{2}$$

$$r - x^r \geq 0 \quad x^r < \varepsilon \quad -r \leq x \leq r$$

③

$$[x] + [-x] \neq -1 \quad x \notin \mathbb{Z} \quad \{x \mid -r \leq x \leq r \quad x \notin \mathbb{Z}\}$$

$$x^w + w x^r \geq 0 \quad x^r (x+w) \geq 0$$

$$D = [-w, +\infty)$$

④

$$\frac{(x+1)(x-1)x^r(x-w)}{(x-1)(x^r+x+1)} \geq 0$$

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

3 lines
+ 0 1 2

$$D = (-\infty, -1] \cup [w, +\infty) \cup \{0\}$$

Benobar

الف - $|x-2| - 3 \geq 0$ $|x-2| \geq 3$ ⑥

$x-2 \geq 3$ $x \geq 5$ $x-2 \leq -3$ $x \leq -1$

$D = \text{---} \underset{-1}{|} \underset{5}{|} \text{---}$ $R = (-1, 5) \cup (-\infty, -1] \cup [5, +\infty)$

ب - $|2-x| \geq 0$ $|2-x| \leq 4$ $-4 \leq 2-x \leq 4$

$-4 \leq -x \leq 2$ $-2 \leq x \leq 4$ $D = [-2, 4]$

④

الف - $|x| \geq 0$ $|x| \leq 1$ $D = (-\infty, 1]$

ب - $|x-5| \geq 0$ $|x-5| \leq 3$ $-3 \leq x-5 \leq 3$

$2 \leq x \leq 8$

$\sqrt{3 - |x-5|} \neq 1$ $3 - |x-5| = 1$ $|x-5| = 2$

$x-5 = 2$ $x \neq 7$ $x-5 = -2$ $x \neq 3$

$D = \text{---} \underset{2}{|} \underset{3}{|} \text{---} \underset{5}{|} \underset{7}{|} \text{---}$ $D = [2, 3) \cup (3, 5) \cup (7, 8]$

$D = [2, 8] - \{3, 7\}$

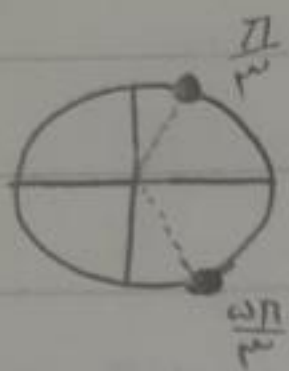
الق - $\cos x \neq 0$



$D = R - \{k\pi + \frac{\pi}{2}\}$ ⑦



ب. $\mu \cos x - 1 \neq 0 \quad \mu \cos x \neq 1 \quad \cos x \neq \frac{1}{\mu} \quad (\vee)$



$$D = R - \left\{ \mu\pi - \frac{\pi}{\mu}, \mu\pi + \frac{\pi}{\mu} \right\}$$

الف $|\mu x + 1| - |x + \mu| = 0 \quad |\mu x + 1| = |x + \mu| \quad (\wedge)$

$$\mu x + 1 = x + \mu$$

$$x \neq \mu$$

$$\mu x + 1 = -x - \mu \quad \mu x = -x - \mu - 1$$

$$x \neq \frac{-\mu - 1}{\mu}$$

$$D = R - \left\{ \frac{-\mu - 1}{\mu}, \mu \right\}$$

ب. $|\mu x + 1| - |x + \mu| > 0$

$$(|\mu x + 1|)^2 > (|x + \mu|)^2$$

$$x^2 - \mu x - \mu > 0$$

$$(x - \mu)(x + 1) > 0$$

$$\mu = \frac{-1}{\mu} \quad \frac{-1}{\mu}$$

$$\mu^2 x + 1 + \mu x > x^2 + \mu + \mu x$$

$$\mu^2 x - \mu x - \mu > 0$$

$$D = \left(-\infty, \frac{-1}{\mu}\right) \cup [\mu, +\infty)$$

$\mu x - 1 > 0 \quad \mu x > 1 \quad x > \frac{1}{\mu} \quad (\odot)$

$$\log_{\omega} \mu x - 1 > 0$$

$$\mu x - 1 > 1$$

$$\mu x > 2$$

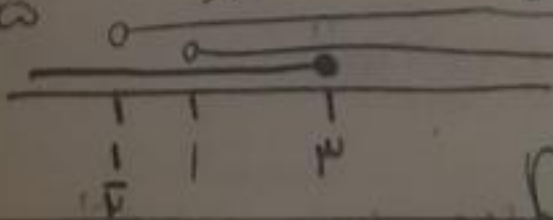
$$x > 1$$

$$\log_{\omega} \log_{\omega} (\mu x - 1) > 0$$

$$\log_{\omega} \mu x - 1 \leq 1$$

$$\mu x - 1 \leq \omega$$

$$x \leq \frac{\omega + 1}{\mu}$$



$$D = (1, \mu]$$

Senobar

الف $\mu \cos x + 1 > 0 \Rightarrow \cos x > -\frac{1}{\mu}$



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$\left(\mu\pi - \frac{\pi}{\mu}, \mu\pi + \frac{\pi}{\mu} \right)$

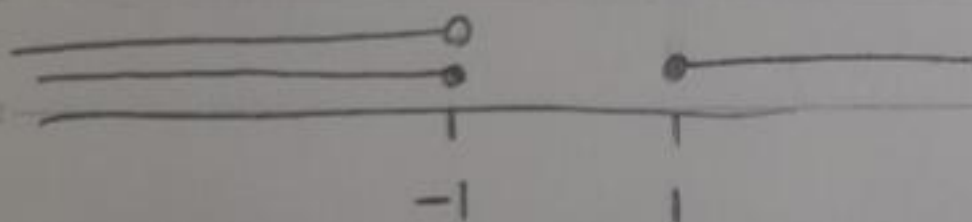
ب- $\frac{x-1}{x+1} > 0$

x	-1	$+$	$-$	$+$
p	$+$	$-$	$+$	$+$

$\log \frac{x-1}{x+1} \geq 0 \Rightarrow \frac{x-1}{x+1} \geq 1$

$\frac{x-1-x-1}{x+1} \geq 0 \Rightarrow \frac{-2}{x+1} \geq 0$

x	-1	$+$	$-$
p	$+$	$-$	$+$



$\leadsto D = (-\infty, -1)$