

$$||x^2-1| - 2x| < 1$$

$$\begin{cases} |x^2-1| - 2x > -1 & \textcircled{1} \\ |x^2-1| - 2x < 1 & \textcircled{2} \end{cases}$$

$$\begin{cases} x < -1 + \sqrt{3} \vee x > 2 & \textcircled{a} \\ 0 < x < 1 + \sqrt{3} & \textcircled{b} \end{cases}$$

$$\textcircled{1} \quad |x^2-1| > 2x-1$$

$$\begin{cases} x^2-1 > 0 \\ x^2-1 > 2x-1 \end{cases} \cup \begin{cases} x^2-1 < 0 \\ -(x^2-1) > 2x-1 \end{cases}$$

$$\begin{cases} x \geq 1 \vee x \leq -1 \\ x^2-2x > 0 \end{cases} \cup \begin{cases} -1 < x < 1 \\ -x^2-2x+2 > 0 \end{cases}$$

$$\begin{cases} x \leq -1 \parallel x \geq 1 \\ x < 0 \parallel x > 2 \end{cases} \cup \begin{cases} -1 < x < 1 \\ -1-\sqrt{3} < x < -1+\sqrt{3} \end{cases}$$

$$(x \leq -1 \parallel x > 2) \cup (-1 < x < -1 + \sqrt{3}) \quad \textcircled{a}$$

$$\textcircled{2} \quad |x^2-1| < 2x+1$$

$$\begin{cases} x^2-1 \geq 0 \\ x^2-1 < 2x+1 \end{cases} \cup \begin{cases} x^2-1 < 0 \\ -x^2+1 < 2x+1 \end{cases}$$

$$\begin{cases} x \leq -1 \vee x \geq 1 \\ x^2-2x-2 < 0 \end{cases} \cup \begin{cases} -1 < x < 1 \\ x^2+2x > 0 \end{cases}$$

$$\begin{cases} x \leq -1 \vee x \geq 1 \\ 1-\sqrt{3} < x < 1+\sqrt{3} \end{cases} \cup \begin{cases} -1 < x < 1 \\ x < -2 \vee x > 0 \end{cases}$$

$$1 \leq x < 1 + \sqrt{3} \cup 0 < x < 1 \quad \textcircled{b}$$