

1) $a \in \mathbb{R}$
 $\log_{\sqrt{a}} \sqrt{x^2-1} > 1$

① Se $0 < \sqrt{a} < 1$ $\log_{\sqrt{a}} \sqrt{x^2-1} > 1$

$0 < a < 1$ $\begin{cases} \sqrt{x^2-1} < \sqrt{a} \\ \sqrt{x^2-1} > 0 \\ x^2-1 \geq 0 \end{cases}$

$-\sqrt{a+1} < x < \sqrt{a+1}$

Sol:

se $0 < a < 1$ $-\sqrt{a+1} < x < -1 \cup 1 < x < \sqrt{a+1}$

② Se $a > 1$ $\log_{\sqrt{a}} \sqrt{x^2-1} > 1$

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

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Se $a > 1$ $x < -\sqrt{a+1} \cup x > \sqrt{a+1}$

5) $y = \frac{\log(x^2+3x) - 1}{\log(17-2x) - \log(x-3)}$

P.E. = $\left\{ x \in \mathbb{R} / \begin{cases} x^2+3x > 0 \\ 17-2x > 0 \\ x-3 > 0 \\ \log(17-2x) \neq \log(x-3) \end{cases} \right.$