

1.36
2

$$\log_{\frac{1}{4}}(x^2-4) + \log_{\frac{1}{4}}(x+1) \leq \log_{\frac{1}{4}}(x-2) + \log_{\frac{1}{4}}(2x^2-2x+8)$$

$$\log_{\frac{1}{4}}[(x-2)(x+2)(x+1)] \leq \log_{\frac{1}{4}}[(x-2)(2x^2-2x+8)]$$

$$(x-2)(x+2)(x+1) \geq (x-2)(2x^2-2x+8)$$

$$(x-2)[(x+2)(x+1) - (2x^2-2x+8)] \geq 0$$

$$(x-2)(x^2+3x+2-2x^2+2x-8) \geq 0$$

$$(x-2)(-x^2+5x-6) \geq 0$$

$$\begin{array}{ccc} \downarrow & & \downarrow \\ x-2 & & x-2 \end{array} \quad x=2$$

$$\begin{array}{c} + \quad + \\ | \quad | \\ 2 \quad 3 \\ - \end{array}$$

$$\boxed{x \leq 3}$$

$$\boxed{2 < x \leq 3} \quad \text{for } x > 2 \text{ then } x^2-4 > 0$$

$$\frac{1}{x-2}$$

$$\begin{array}{l} \text{for } x > 2 \\ x > 2 \leftarrow 2x^2-2x+8 > 0 \\ x > -1 \leftarrow x-2 > 0 \\ x > 2 \leftarrow x+1 > 0 \\ x < -2 \leftarrow x^2-4 > 0 \end{array}$$