$$f(x) = \begin{cases} -1 & \text{if } x < -\frac{\pi}{2}, \\ sin(x) & \text{if } -\frac{\pi}{2} \leq x \leq \frac{\pi}{2}, \\ 1 & \text{if } x > \frac{\pi}{2}. \end{cases} \text{ and } f(x) = \begin{cases} +\infty & \text{if } q > 1, \\ 1 & \text{if } q = 1, \\ 0 & \text{if } -1 < q < 1, \\ \nexists & \text{if } q \leq -1. \end{cases}$$

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