

$$\begin{aligned} 8.2 \frac{\sqrt{x^2+1} + x}{\sqrt{x^2+1}} - x &= \frac{(\infty - \infty)}{\sqrt{x^2+1} + x} = \frac{(\sqrt{x^2+1} + x)(\sqrt{x^2+1} - x)}{\sqrt{x^2+1} + x} = \frac{(\sqrt{x^2+1})^2 - x^2}{\sqrt{x^2+1} + x} \\ &= \frac{(x^2+1) - x^2}{\sqrt{x^2+1} + x} = \frac{1}{\sqrt{x^2+1} + x} \xrightarrow{x \rightarrow \infty} \frac{1}{\infty} = 0 \end{aligned}$$