

$$\begin{aligned}
 \text{45} \\
 (116) \quad \lim_{x \rightarrow \infty} \frac{(\sqrt{x^2+x}-x) \cdot (\sqrt{x^2+x}+x)}{\sqrt{x^2+x}+x} &= \lim_{x \rightarrow \infty} \frac{x^2+x-x^2}{\sqrt{x^2+x}+x} = \lim_{x \rightarrow \infty} \frac{x}{\sqrt{x^2+x}+x} = \lim_{x \rightarrow \infty} \frac{\frac{x}{x^2}}{\frac{\sqrt{x^2+x}}{x^2} + \frac{x}{x^2}} = \frac{1}{1+1} = \frac{1}{2}
 \end{aligned}$$