

$$\begin{aligned}
 31. \quad & \lim_{x \rightarrow \infty} \frac{1}{\sqrt{x^2 - 2x} - x} \\
 &= \lim_{x \rightarrow \infty} \frac{\sqrt{x^2 - 2x} + x}{(\sqrt{x^2 - 2x} + x)(\sqrt{x^2 - 2x} - x)} \\
 &= \lim_{x \rightarrow \infty} \frac{\sqrt{x^2 - 2x} + x}{x^2 - 2x - x^2} \\
 &= \lim_{x \rightarrow \infty} \frac{x(\sqrt{1 - (2/x)} + 1)}{-2x} = \frac{2}{-2} = -1
 \end{aligned}$$