

Ex 1.1.5

$$\begin{aligned} g) \lim_{x \rightarrow -\infty} (x^2+x)e^x &= \text{"}\infty \cdot 0\text{"} = \lim_{x \rightarrow -\infty} \frac{x^2+x}{e^{-x}} \stackrel{\text{"}\frac{\infty}{\infty}\text{"}}{=} \lim_{x \rightarrow -\infty} \frac{2x+1}{-e^{-x}} \\ &\stackrel{\text{"}\frac{\infty}{\infty}\text{"}}{=} \lim_{x \rightarrow -\infty} \frac{2}{e^{-x}} = \frac{2}{\infty} = \underline{0} \end{aligned}$$

$$\begin{aligned} d) \lim_{x \rightarrow 0} x e^{1/x} &= \text{"}0 \cdot e^{\frac{1}{0^+}}\text{"} = \text{"}0 \cdot \infty\text{"} = \lim_{x \rightarrow 0} \frac{e^{1/x}}{1/x} \\ &\stackrel{\text{"}\frac{\infty}{\infty}\text{"}}{=} \lim_{x \rightarrow 0} \frac{-\frac{1}{x^2} e^{1/x}}{-\frac{1}{x^2}} = \lim_{x \rightarrow 0} e^{1/x} = e^{+\infty} = \underline{+\infty} \end{aligned}$$