

Indeterminate Forms and L'Hospital's Rule

$$\frac{0}{0}$$

$$\frac{\infty}{\infty}$$

$$\infty - \infty$$

$$(0)(\infty)$$

$$0^0$$

$$\infty^0$$

$$1^\infty$$

(a) $\lim_{x \rightarrow 0} \frac{x^2}{e^x - 1}$

(f) $\lim_{x \rightarrow \infty} x^{\frac{1}{x}}$

(b) $\lim_{x \rightarrow \infty} \frac{x^2}{e^x}$

(g) $\lim_{x \rightarrow 0} (1+x)^{\frac{1}{x}}$

(c) $\lim_{x \rightarrow 1} \frac{1}{\ln x} - \frac{1}{x-1}$

(h) $\lim_{x \rightarrow \infty} \left(1 + \frac{1}{x}\right)^x$

(d) $\lim_{x \rightarrow \infty} e^{-x} \sqrt{x}$

(i) $\lim_{x \rightarrow 0} (x + e^{2x})^{\frac{1}{x}}$

(e) $\lim_{x \rightarrow 0} x^{\frac{1}{\ln x}}$