

L'HOSPITAL'S RULE [SST 4.5]

EX 4.5.1: Compute the following limit: $\lim_{x \rightarrow 1} \frac{x^2 - 1}{1 - x}$

EX 4.5.2: Compute the following limit: $\lim_{x \rightarrow \infty} \frac{e^{2x} - 1}{x}$

EX 4.5.3: Compute the following limit: $\lim_{x \rightarrow 0} \frac{1 - \cos x}{\sec x}$

EX 4.5.4: Compute the following limit: $\lim_{x \rightarrow \infty} \frac{\ln x}{x}$

EX 4.5.5: Compute the following limit: $\lim_{x \rightarrow -\infty} \frac{x^2}{e^{-x}}$

EX 4.5.6: Compute the following limit: $\lim_{x \rightarrow 1^+} \left(\frac{1}{\ln x} - \frac{1}{x-1} \right)$

EX 4.5.7: Compute the following limit: $\lim_{x \rightarrow \infty} (\sqrt{x+1} - \sqrt{x})$

EX 4.5.8: Compute the following limit: $\lim_{x \rightarrow \infty} e^{-x} \sqrt{x}$

EX 4.5.9: Compute the following limit:

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

EX 4.5.10: Compute the following limit:

$$\lim_{x \rightarrow 0^+} (\sin x)^x$$

EX 4.5.11: Compute the following limit:

$$\lim_{x \rightarrow \infty} x^{1/x}$$

EX 4.5.12: Compute the following limit (use caution!!):

$$\lim_{x \rightarrow 0^+} \sin x \ln x$$