

Indeterminate Forms:

*Put the limit in the form $\frac{0}{0}$ or $\frac{\infty}{\infty}$ if it is in a different indeterminate form before apply l'hospital's rule.

L'hospital's Rule:

$$\text{If } \lim_{x \rightarrow a} \frac{f(x)}{g(x)} = \frac{0}{0} \text{ or } \frac{\infty}{\infty}, \text{ then } \lim_{x \rightarrow a} \frac{f(x)}{g(x)} = \lim_{x \rightarrow a} \frac{f'(x)}{g'(x)}$$

1. $\lim_{x \rightarrow 2} \frac{x^2+3x-10}{x-2}$

2. $\lim_{x \rightarrow 0} \frac{\sin x}{x}$

3. $\lim_{x \rightarrow \infty} \frac{e^x}{x^3}$

4. $\lim_{x \rightarrow \infty} \frac{x^2}{e^{x-1}}$

5. $\lim_{x \rightarrow 0} \frac{3e^x - 3x - 3}{x^2}$

6. $\lim_{x \rightarrow 0^+} x \ln x$

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

8. $\lim_{x \rightarrow 3^+} \frac{18}{x^2-9} - \frac{x}{x-3}$