

# L'Hôpital's rule

L'Hôpital's rule: Suppose  $f$  and  $g$  are differentiable functions defined on the positive reals such that

$$\lim_{n \rightarrow \infty} f(n) = \lim_{n \rightarrow \infty} g(n) = \infty$$

Suppose also that

$$\lim_{n \rightarrow \infty} \frac{f'(n)}{g'(n)} = C < \infty$$

Then

$$\lim_{n \rightarrow \infty} \frac{f(n)}{g(n)} = C$$