

Limites Remarquables



Exemple :

$$\frac{\ln(u) \xrightarrow{+\infty}}{u} \rightarrow 0$$

$$\lim_{n \rightarrow +\infty} n \ln\left(\frac{n+1}{n}\right)$$

$$= \lim_{n \rightarrow +\infty} \frac{\ln\left(\frac{n+1}{n}\right)}{\frac{n+1}{n}} \times \frac{n+1}{n} \times n$$

$$= 0$$

$$\text{Car } \begin{cases} \lim_{n \rightarrow +\infty} \frac{n+1}{n} = +\infty \\ \lim_{n \rightarrow +\infty} \frac{\ln(n)}{n} = 0 \end{cases}$$



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$$\text{dnc } \lim_{n \rightarrow +\infty} \frac{\ln\left(\frac{n+1}{n}\right)}{\frac{n+1}{n}} = 0$$

$$\text{et } \lim_{n \rightarrow +\infty} \frac{n+1}{n} \times n = 1.$$

Ainsi :

$$\lim_{n \rightarrow +\infty} n \ln\left(\frac{n+1}{n}\right) = 0$$