

Limite remarcabile

• Fie şirul (x_n) , $x_n > 0$, $\lim_{n \rightarrow \infty} x_n = +\infty$. Atunci $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{x_n}\right)^{x_n} = e$.

• Fie şirul (x_n) , $\lim_{n \rightarrow \infty} x_n = 0$. Atunci $\lim_{n \rightarrow \infty} (1 + x_n)^{\frac{1}{x_n}} = e$.

• Fie şirul (x_n) , $x_n \neq 0$, $\lim_{n \rightarrow \infty} x_n = 0$. Atunci:

1. $\lim_{n \rightarrow \infty} \frac{\ln(1 + x_n)}{x_n} = 1$

2. $\lim_{n \rightarrow \infty} \frac{a^{x_n} - 1}{x_n} = \ln a, a > 0, a \neq 1$

3. $\lim_{n \rightarrow \infty} \frac{(1 + x_n)^a - 1}{x_n} = a, a \in \mathbb{R}$.