$$\lim b_n = b = 0 \implies \lim \frac{1}{b_n} = ?$$

ESEMPIO:

$$b_n = \frac{(-1)^n}{n}$$

$\lim b_n = 0$; $\lim \frac{1}{b_n}$ NON ESISTE

$\square$

$$\lim b_n = b^- \overset{\text{DEF}}{\iff} \forall \varepsilon > 0, \exists \nu \in \mathbb{N} : \forall n > \nu, \quad b - \varepsilon < b_n < b$$

$$\lim b_n = b^+ \overset{\text{DEF}}{\iff} \forall \varepsilon > 0, \exists \nu \in \mathbb{N} : \forall n > \nu, \quad b < b_n < b + \varepsilon$$

ESEMPI: $\lim \left(\frac{1}{2}\right)^n = 0^+$; $\lim \left(1 - \frac{1}{n}\right) = 1^-$

$\lim \frac{1}{n} = 0^+$; $\lim \left(1 + \frac{1}{n}\right) = 1^+$

$\square$

<u>TEOREMA 8.</u> - $\lim b_n = 0^{\pm} \implies \lim \frac{1}{b_n} = \pm\infty$

DIM.

$$0 < b_n < \varepsilon \implies \frac{1}{b_n} > \frac{1}{\varepsilon}$$

$\square$

$$\frac{1}{0^+} = +\infty \; ; \; \frac{1}{0^-} = -\infty \; ; \; \frac{1}{+\infty} = 0^+ \; ; \; \frac{1}{-\infty} = 0^-$$