

## Analisi Matematica 1- Corso di Laurea in Fisica

### TABELLA DEI PRINCIPALI LIMITI NOTEVOLI

Sia  $\{\varepsilon_n\}$  una successione tale che  $\varepsilon_n \neq 0$ ,  $\varepsilon_n \rightarrow 0$  per  $n \rightarrow +\infty$ . Allora:

$$1. \quad \lim_{n \rightarrow +\infty} \frac{\sin \varepsilon_n}{\varepsilon_n} = 1$$

$$2. \quad \lim_{n \rightarrow +\infty} \frac{1 - \cos \varepsilon_n}{\varepsilon_n^2} = \frac{1}{2}$$

$$3. \quad \lim_{n \rightarrow +\infty} \frac{\tan \varepsilon_n}{\varepsilon_n} = 1$$

$$4. \quad \lim_{n \rightarrow +\infty} \frac{e^{\varepsilon_n} - 1}{\varepsilon_n} = 1$$

$$5. \quad \lim_{n \rightarrow +\infty} \frac{\log(1 + \varepsilon_n)}{\varepsilon_n} = 1$$

$$6. \quad \lim_{n \rightarrow +\infty} \frac{(1 + \varepsilon_n)^\alpha - 1}{\varepsilon_n} = \alpha$$

...E ATTRAVERSO LA NOTAZIONE “o piccolo” ( $\varepsilon_n$  come sopra)

$$1. \quad \sin \varepsilon_n = \varepsilon_n + o(\varepsilon_n)$$

$$2. \quad \cos \varepsilon_n = 1 - \frac{1}{2}\varepsilon_n^2 + o(\varepsilon_n^2)$$

$$3. \quad \tan \varepsilon_n = \varepsilon_n + o(\varepsilon_n)$$

$$4. \quad e^{\varepsilon_n} = 1 + \varepsilon_n + o(\varepsilon_n)$$

$$5. \quad \log(1 + \varepsilon_n) = \varepsilon_n + o(\varepsilon_n)$$

$$6. \quad (1 + \varepsilon_n)^\alpha = 1 + \alpha\varepsilon_n + o(\varepsilon_n)$$