Dimostrazione 1.

$$\lim_{n \to +\infty} \underset{(a_n+b_n)}{=} l + m \tag{1}$$

$$\lim_{n \to +\infty} a_n = l \quad \& \quad \lim_{n \to +\infty} b_n = m \tag{2}$$

$$\Downarrow$$

$$|a_n - l| < \frac{\epsilon}{2} \quad \text{se} \quad n > \overline{n_1} \tag{3}$$

$$|b_n - m| < \frac{\epsilon}{2} \quad \text{se} \quad n > \overline{n_2} \tag{4}$$

$n > \max\{\overline{n_1}, \overline{n_2}\}$

$$|a_n + b_n - l - m| \leq |a_n - l| + |b_n - m| < \frac{\epsilon}{2} + \frac{\epsilon}{2} = \epsilon \tag{5}$$

$$\Downarrow$$

$$\forall \epsilon > 0, \exists \overline{n} \equiv \max\{\overline{n_1}, \overline{n_2}\} \;:\; n > \overline{n} \;\Rightarrow\; \underbrace{|(a_n + b_n) - (l + m)|}_{0} < \epsilon \tag{6}$$

$$(a_n + b_n) - (l + m) = 0 \tag{7}$$

$$a_n + b_n = l + m \tag{8}$$