Limiti Notevoli

$$\lim_{x \to 0} \frac{sen\ x}{x} = 1 \qquad \lim_{x \to 0} \frac{1 - cos\ x}{x^2} = \frac{1}{2} \qquad \lim_{x \to 0} \frac{1 - cos\ x}{x} = 0$$

$$\lim_{x \to 0} \frac{tg\ x}{x} = 1 \qquad \lim_{x \to \infty} \left(1 + \frac{1}{x}\right)^x = e \qquad \lim_{x \to 0} \frac{log\ (1 + x)}{x} = 1$$

$$\lim_{x \to 0} \frac{a^x - 1}{x} = log\ a \qquad \lim_{x \to 0} \frac{e^x - 1}{x} = 1 \qquad \lim_{x \to 0} \frac{(1 + x)^\alpha - 1}{x} = \alpha$$

$$\lim_{x \to +\infty} \frac{log\ x}{x^\alpha} = 0 \qquad \lim_{x \to +\infty} \frac{x^\alpha}{a^x} = 0 \qquad \lim_{x \to +\infty} \frac{log\ x}{a^x} = 0$$

$$\lim_{x \to 0^+} x^\alpha\ log\ x = 0 \quad (\alpha > 0) \qquad \lim_{x \to \infty} [f(x)]^{g(x)} = \lim_{x \to \infty} e^{[g(x) \cdot log\ f(x)]}$$

$$\lim_{x \to +\infty} log_a\ x = \begin{cases} +\infty & se\ a > 1 \\ -\infty & se\ 0 < a < 1 \end{cases} \qquad \lim_{x \to 0^+} log_a\ x = \begin{cases} -\infty & se\ a > 1 \\ +\infty & se\ 0 < a < 1 \end{cases}$$

$$\lim_{x \to +\infty} a^x = \begin{cases} +\infty & se\ a > 1 \\ 0 & se\ 0 < a < 1 \end{cases} \qquad \lim_{x \to -\infty} a^x = \begin{cases} 0 & se\ a > 1 \\ +\infty & se\ 0 < a < 1 \end{cases}$$

$$\lim_{x \to +\infty} sen\ x = non\ esiste \qquad \lim_{x \to \infty} \frac{sen\ x}{x} = 0$$

$$\lim_{x \to +\infty} cos\ x = non\ esiste \qquad \lim_{x \to \infty} \frac{cos\ x}{x} = 0$$

Forme indeterminate

$+\infty - \infty = ?$	$-\infty + \infty = ?$	$0 \bullet \infty = ?$	$\dfrac{0}{0} = ?$	$\dfrac{\infty}{\infty} = ?$	$0^0 = ?$	$\infty^0 = ?$	$1^\infty = ?$

Algebra dei limiti

$n + \infty = +\infty$	$n - \infty = -\infty$	$+\infty + \infty = +\infty$	$-\infty - \infty = -\infty$	$n \bullet \infty = \infty$	$\infty \bullet \infty = \infty$

$\dfrac{0}{n} = 0$	$\dfrac{0}{\infty} = 0$	$\dfrac{n}{\infty} = 0$	$\dfrac{n}{0} = \infty$	$\dfrac{\infty}{0} = \infty$	$\dfrac{\infty}{n} = \infty$