

**Tutorato 6 - ICA**  
**Mercoledì 27 Ottobre 2004**  
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Calcolare i seguenti limiti

1.  $\lim_{n \rightarrow \infty} \frac{\sqrt{n^3 + 9n^2} - \sqrt{n^4 + 1}}{n^2 + 2}$

2.  $\lim_{n \rightarrow \infty} \sqrt[n]{n^4 + 1}$

3.  $\lim_{n \rightarrow \infty} \frac{n}{2^n - 3^n}$

4.  $\lim_{n \rightarrow \infty} \frac{n^2}{n!}$

5.  $\lim_{n \rightarrow \infty} \frac{n^{20} + 4n^4 + 1}{n!}$

6.  $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n!}\right)^n$

7.  $\lim_{n \rightarrow \infty} n \left( \sqrt{1 + \frac{2}{n^2}} - \sqrt{1 - \frac{4}{n}} \right)$

8.  $\lim_{n \rightarrow \infty} \frac{\sin n}{n}$

9.  $\lim_{n \rightarrow \infty} \frac{(n+1)^6 - (n-1)^6}{(n+1)^5 + (n-1)^5}$

10.  $\lim_{n \rightarrow \infty} \left(1 + \frac{1}{n!}\right)^{n^n}$

11.  $\lim_{n \rightarrow \infty} \frac{\log(n^3)}{\log(n^3 + 3n^2)}$

12.  $\lim_{n \rightarrow \infty} \frac{n^2(\log n)^2}{\sqrt{n^5 + 1}}$