

Cognome\_Nome

Matr

$$1) \lim_{n \rightarrow +\infty} \frac{\log^5 n + 5 \log^4 n}{10 \sqrt{n} - 20}$$

$$2) \lim_{n \rightarrow +\infty} \frac{1}{n} \left( \frac{n+2}{n+3} \right)^n$$

$$3) \lim_{n \rightarrow +\infty} n^2 \left( \sqrt[5]{\frac{n^2-2}{n^2+1}} - 1 \right)$$

$$4) \sum \frac{1}{\sqrt{n^2-n} (\sqrt{n+1} - \sqrt{n})}$$

$$5) \sum \left( \frac{\log \log n}{\log n} \right)^n$$

$$6) \sum \frac{(n!)^2}{n^3 (2n)!}$$

$$7) \sum (-1)^n \frac{\log^a n}{\sqrt{n} - n}$$

studiare la  
convergenza e la  
convergenza assoluta  
el variare di  $a \in \mathbb{R}$