ESERCIZI SUI LIMITI DI SUCCESSIONI

Nicola Arcozzi

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Calcolare i seguenti limiti di successioni

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

$$\lim_{n\to\infty} \frac{(2n^2-3n+5)^3+n^7}{n^6+(2n+1)^7} \tag{2}$$

$$\lim_{n\to\infty} \frac{2\cdot 3^{2n+1}+3\cdot n^5}{5\cdot 9^{n+1}+7\cdot n^4} \tag{3}$$

$$\lim_{n\to\infty} \frac{\left(2^{n+1}\right)^6+64^n}{\left(n+4^{n+1}\right)^3} \tag{4}$$

$$\lim_{n\to\infty} \frac{\left(2^{3-n}+2^{n-3}\right)^n}{2^{n^2}} \tag{5}$$

Altri limiti

$$\lim_{n\to\infty}\left(\frac{n+2}{n}\right)^n \;;\;\; \lim_{n\to\infty}\left(\frac{2n+1}{n}\right)^n \;;\;\; \lim_{n\to\infty}\left(\frac{n+1}{2n}\right)^n \;;\;\; \lim_{n\to\infty}\left(\frac{n-2}{n}\right)^n \tag{6}$$

$$\lim_{n\to\infty}\left[n\log(n+1)-n\log(n)\right] \;;\;\; \lim_{n\to\infty}\left[n\log(n+1)-(n+1)\log(n)\right] \;;$$
$$\lim_{n\to\infty}\left[(n+1)\log(n+1)-n\log(n)\right] \tag{7}$$

$$\lim_{n\to\infty}\left(\frac{n^3-3n+1}{n^2+1}\right)^{\frac{2n-3n^2}{2n+1}} \tag{8}$$

$$\lim_{n\to\infty}\left(\frac{n^2+3n}{n^2+1}\right)^{\frac{2n^2+1}{3n+1}} \;;\;\; \lim_{n\to\infty}\left(\frac{n^2+3}{n^2+1}\right)^{\frac{2n^2+1}{3n+1}} \;;\;\; \lim_{n\to\infty}\left(\frac{n^2+3}{n^2+n}\right)^{\frac{2n^2+1}{3n+1}} \tag{9}$$

Soluzioni. (1) 8/9; (2) $1/2^7$; (3) 2/15; (4) 65/64; (5) 0; (6) e^2, $+\infty$, 0, e^{-2}; (7) 1, $-\infty$, $+\infty$; (8) 0; (9) e^2, 1, $e^{-2/3}$.