Tutoraggio Ingegneria Meccanica e Ingegneria energetica

Secondo foglio di esercizi

Stabilire se i seguenti limiti eseistono, e, in caso affermativo, calcolarli.

$$\lim_{n\to\infty}\left(1+\frac{27}{2n-1}\right)^{5n} \qquad \lim_{n\to\infty}\left(\frac{n+3}{n-1}\right)^{n}$$

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

$$\lim_{n\to\infty}\frac{\log(n+1)}{\log n} \qquad \lim_{n\to\infty}\frac{n\log n}{(n+1)(n+2)}$$

$$\lim_{n\to\infty}\frac{1+\log n}{\sqrt{n}-\log n} \qquad \lim_{n\to\infty}\sqrt[n]{2^n+3^n}$$

$$\lim_{n\to\infty}(-1)^n\frac{n}{n^2+1} \qquad \lim_{n\to\infty}(-1)^n\frac{n^2+1}{n+1}$$

$$\lim_{n\to\infty}\frac{n^6+\log n+3^n}{2^n+n^4+\log^5 n} \qquad \lim_{n\to\infty}\frac{(n^2+1)^n}{n^{2n}}$$

$$\lim_{n\to\infty}(2^n-n^{\sqrt[3]{n}}) \qquad \lim_{n\to\infty}\frac{\sqrt{1+\frac{1}{\log^2 n}}-1}{\sin^3\frac{1}{\log n}}$$

$$\lim_{n\to\infty}\frac{\cos 2n}{n} \qquad \lim_{n\to\infty}(n-n\arctan n)$$

$$\lim_{n\to\infty}(-1)^n\left(\frac{\pi}{4}\right)^n \qquad \lim_{n\to\infty}(-1)^n\left(\frac{3}{\pi}\right)^n$$

$$\lim_{n\to\infty}n\sin\left(\pi+\frac{1}{n}\right) \qquad \lim_{n\to\infty}(-1)^n\cos(n\pi)$$

$$\lim_{n\to\infty}\sin(n\pi) \qquad \lim_{n\to\infty}(-1)^{n^2+n}$$

$$\lim_{n\to\infty}(n+\tan n) \qquad \lim_{n\to\infty}(\sin n-\sqrt[4]{n})$$

$$\lim_{n\to\infty}\frac{\sin\sqrt[4]{\frac{16}{n^8}}}{\log\left(1+3\sqrt{\frac{7}{4n}}\right)} \qquad \lim_{n\to\infty}\frac{n^{n-2}+(n-2)^n}{4n^n-3n!}$$

$$\lim_{n\to\infty}n^3\left(\frac{1}{2}+\cos n\right) \qquad \lim_{n\to\infty}n^3(\sin n-2)$$