VENERDÌ 16 NOVEMBRE 2018

Serie di McLaurin e di Taylor

- $f(x) = \log x \qquad x_0 = 2$

$$f(x) \simeq \log 2 + \frac{1}{2}(x-2) - \frac{1}{8}(x-2)^2 + \frac{1}{24}(x-2)^3$$

- $f(x) = e^{1/x} \qquad x_0 = 1$

$$f(x) \simeq 1 + e(x-1) + \frac{3}{2}e(x-1)^2 - \frac{13}{6}e(x-1)^3$$

SERIE NOTEVOLI DI MC LAURIN

$$e^x \simeq 1 + x + \frac{1}{2}x^2 + \frac{1}{6}x^3 + \dots$$

$$\operatorname{sen} x = x - \frac{1}{6}x^3 + \dots$$

$$\cos x = 1 - \frac{1}{2}x^2 + \frac{1}{24}x^4 + \dots$$

$$\operatorname{tg} x = x + \frac{1}{3}x^3 + \dots$$

$$e^{\operatorname{sen} x} \simeq 1 + x + \frac{1}{2}x^2 + \dots$$

$$e^{\cos x} \simeq e - \frac{1}{2}e\frac{x^2}{2} + \frac{1}{6}x^4 + \dots$$

$$\lim_{x \to 0} \frac{e^x - 1 + \log(1-x)}{\operatorname{tg} x - x} = -\frac{1}{2}$$

$$\lim_{x \to 0} \frac{e^{x^2} - \cos x - \frac{3}{2}x^2}{x^4} = \frac{11}{24}$$

$$\lim_{x \to 0} \frac{\log(1 + x \operatorname{arctg} x) + 1 - e^{x^2}}{\sqrt{1 + 2x^4} - 1} \simeq -\frac{4}{3}$$

$$\lim_{x \to 0} \frac{4[\cos(2x) + \sin^2(\sqrt{2}x) - 1]}{x(e^{2x} - \cosh(2x) - 2x)} \simeq -2$$

INTEGRALI

$$\int x^{\alpha} dx = \frac{1}{\alpha+1} x^{\alpha+1} + c$$

$$\int \frac{1}{x} dx = \log|x| + c$$

$$\int (x^2+1)^4 x \, dx = \frac{1}{2} \cdot \frac{(x^2+1)^5}{5} + c$$

$$\int (x^2+1)^4 dx = \dots$$ sviluppare e integrare

$$\int \cos x \, dx = \operatorname{sen} x + c$$

$$\int \operatorname{sen} x \, dx = -\cos x + c$$

$$\int \operatorname{sen} 3x \, dx = -\frac{1}{3} \cos 3x + c$$

$$\int \frac{1}{1+x^2} dx = \operatorname{arctg} x + c$$

$$\int e^x dx = e^x + c$$