INTEGRALI FONDAMENTALI

$$f(x) \rightsquigarrow \int f(x)\,dx$$

$$x^k \rightsquigarrow \frac{x^{k+1}}{k+1} + c,\ k \neq -1$$

$$\frac{1}{x} \rightsquigarrow \ln(x) + c$$

$$\sin(x) \rightsquigarrow -\cos(x) + c$$

$$\cos(x) \rightsquigarrow \sin(x) + c$$

$$e^x \rightsquigarrow e^x + c$$

$$\sinh(x) \rightsquigarrow \cosh(x) + c$$

$$\cosh(x) \rightsquigarrow \sinh(x) + c$$

$$\frac{1}{1+x^2} \rightsquigarrow \arctan(x) + c$$

$$\frac{1}{\sqrt{1-x^2}} \rightsquigarrow \arcsin(x) + c$$

Regole di Integrazione

Linearità.

$$\int af(x) + bg(x)\,dx = a\int f(x)\,dx + b\int g(x)\,dx$$

Macroregole.

$$\int f'(x)\cdot e^{f(x)}\,dx = e^{f(x)} + c$$

$$\int \frac{f'(x)}{f(x)}\,dx = \ln\left(f(x)\right) + c$$

$$\int f'(x)\cdot \sin(f(x))\,dx = -\cos(f(x)) + c$$

$$\int f'(x)\cdot \cos(f(x))\,dx = \sin(f(x)) + c$$

$$\int f'(x)\cdot \left(f(x)\right)^k\,dx = \frac{\left(f(x)\right)^{k+1}}{k+1} + c$$

Formula di Integrazione per parti.

$$\int f'\cdot g = f\cdot g - \int f\cdot g'$$