Integrali Indefiniti

Casi particolari	Generalizzazioni corrispondenti
$\int x^\alpha\,dx = \frac{x^{\alpha+1}}{\alpha+1} + c \qquad \alpha \neq -1$	$\int f(x)^\alpha \cdot f'(x)\,dx = \frac{f(x)^{\alpha+1}}{\alpha+1} + c \qquad \alpha \neq -1$
$\int \frac{1}{x}\,dx = \ln\|x\| + c$	$\int \frac{f'(x)}{f(x)}\,dx = \ln\|f(x)\| + c$
$\int \cos x\,dx = \operatorname{sen} x + c$	$\int \cos[f(x)] \cdot f'(x)\,dx = \operatorname{sen}[f(x)] + c$
$\int \operatorname{sen} x\,dx = -\cos x + c$	$\int \operatorname{sen}[f(x)] \cdot f'(x)\,dx = -\cos[f(x)] + c$
$\int \operatorname{tg} x\,dx = -\ln\|\cos x\| + c$	$\int \operatorname{tg}[f(x)] \cdot f'(x)\,dx = -\ln\|\cos[f(x)]\| + c$
$\int \frac{1}{\cos^2 x}\,dx = \operatorname{tg} x + c$	$\int \frac{f'(x)}{\cos^2 f(x)}\,dx = \operatorname{tg} f(x) + c$
$\int \frac{1}{\operatorname{sen}^2 x}\,dx = -\operatorname{cotg} x + c$	$\int \frac{f'(x)}{\operatorname{sen}^2 f(x)}\,dx = -\operatorname{cotg} f(x) + c$
$\int \cos(\alpha x + \beta)\,dx = \frac{1}{\alpha}\operatorname{sen}(\alpha x + \beta) + c$	
$\int \operatorname{sen}(\alpha x + \beta)\,dx = -\frac{1}{\alpha}\cos(\alpha x + \beta) + c$	
$\int \frac{1}{\sqrt{1-x^2}}\,dx = \operatorname{arcsen} x + c = -\arccos x + c$	$\int \frac{f'(x)}{\sqrt{1-f(x)^2}}\,dx = \operatorname{arcsen} f(x) + c = -\arccos f(x) + c$
$\int \frac{1}{1+x^2}\,dx = \operatorname{arctg} x + c$	$\int \frac{f'(x)}{1+f(x)^2}\,dx = \operatorname{arctg} f(x) + c$
$\int a^x\,dx = \frac{a^x}{\ln a} + c$	$\int a^{f(x)} \cdot f'(x)\,dx = \frac{a^{f(x)}}{\ln a} + c$

Funzione razionale fratta	$\Delta > 0$	$\Delta = 0$	$\Delta < 0$
$\int \frac{px+q}{ax^2+bx+c}\,dx$	$\frac{px+q}{ax^2+bx+c} = \frac{A}{x-x_1} + \frac{B}{x-x_2}$	$\frac{px+q}{ax^2+bx+c} = \frac{A}{(x-x_1)^2} + \frac{B}{x-x_1}$	$\frac{px+q}{ax^2+bx+c} = A\frac{2ax+b}{ax^2+bx+c} + \frac{B}{ax^2+bx+c}$
$\int \frac{q}{ax^2+bx+c}\,dx$	$A = \frac{px_1+q}{a(x_1-x_2)} \quad B = \frac{px_2+q}{a(x_2-x_1)}$	$A = \frac{px_1+q}{a} \quad B = \frac{p}{a}$	$\int \frac{q}{ax^2+bx+c}\,dx = \frac{2q}{\sqrt{-\Delta}}\operatorname{arctg}\frac{2ax+b}{\sqrt{-\Delta}} + c$

Integrazione per sostituzione: $\int f(x)\,dx = \int f[g(t)] \cdot g'(t)\,dt$

Integrazione per parti: $\int f(x) \cdot g'(x)\,dx = f(x) \cdot g(x) - \int f'(x) \cdot g(x)\,dx$

Particolare funzione irrazionale	$a > 0$	$a < 0 \Rightarrow ax^2+bx+c = a(x-x_1)(x-x_2)$
$\int f(x, \sqrt{ax^2+bx+c})\,dx$	$\sqrt{ax^2+bx+c} = t - \sqrt{a} \cdot x$	$\sqrt{ax^2+bx+c} = t(x-x_1)$

Integrale del differenziale binomio	$n \in \mathbb{Z}$	$\frac{m+1}{p} \in \mathbb{Z}$	$\frac{m+1}{p} + n \in \mathbb{Z}$
$\int x^m(a+bx^p)^n\,dx$	$x = t^k$	$a + bx^p = t^h$	$ax^{-p} + b = t^h$
$m, p, n \in \mathbb{Q}$	k=MCM dei denominatori di m, p	h=denominatore di n	h=denominatore di n