INTEGRALI INDEFINITI NOTEVOLI

N.B. È stata omessa la costante arbitraria.

IMMEDIATI

$\int dx$	x	$\int x\,dx$	$\frac{x^2}{2}$
$\int x^n dx \quad (n\neq -1)$	$\frac{x^{n+1}}{n+1}$	$\int x^{-n} dx \quad (n\neq 1)$	$-\frac{1}{(n-1)x^{n-1}}$
$\int \frac{1}{x}dx$	$\ln\lvert x\rvert$	$\int \frac{1}{x^2}dx$	$-\frac{1}{x}$
$\int \sqrt{x}\,dx$	$\frac{2}{3}\sqrt{x^3}$	$\int \frac{1}{\sqrt{x}}dx$	$2\sqrt{x}$
$\int \operatorname{sen} x\,dx$	$-\cos x$	$\int \cos x\,dx$	$\operatorname{sen} x$
$\int \operatorname{sen} ax\,dx$	$-\frac{1}{a}\cos ax$	$\int \cos ax\,dx$	$\frac{1}{a}\operatorname{sen} ax$
$\int \operatorname{sen}\frac{x}{a}dx$	$-a\cos\frac{x}{a}$	$\int \cos\frac{x}{a}dx$	$a\operatorname{sen}\frac{x}{a}$
$\int \frac{1}{\operatorname{sen} x}dx$	$\ln\left\lvert \operatorname{tg}\frac{x}{2}\right\rvert = \ln\lvert \operatorname{cosec} x-\operatorname{ctg} x\rvert$	$\int \frac{1}{\cos x}dx$	$\ln\left\lvert \operatorname{tg}\left(\frac{x}{2}+\frac{\pi}{4}\right)\right\rvert = \ln\lvert \sec x+\operatorname{tg} x\rvert$
$\int \operatorname{tg} x\,dx$	$-\ln\lvert\cos x\rvert$	$\int \frac{1}{\operatorname{tg} x}dx$	$\ln\lvert \operatorname{sen} x\rvert$
$\int \frac{1}{\operatorname{sen}^2 x}dx$	$-\frac{1}{\operatorname{tg} x}$	$\int \frac{1}{\cos^2 x}dx$	$\operatorname{tg} x$
$\int \operatorname{arctg} x\,dx$	$x\operatorname{arctg} x - \frac{1}{2}\ln(1+x)$	$\int \operatorname{arcsen} x\,dx$	$\sqrt{1+x^2}+x\operatorname{arcsen} x$
$\int e^x dx$	e^x	$\int a^x dx$	$\frac{1}{\ln a}a^x$
$\int \ln x\,dx$	$x(\ln x-1)$	$\int x^n \ln x\,dx$	$\frac{x^{n+1}}{n+1}\left(\ln x-\frac{1}{n+1}\right)$
$\int \frac{1}{\sqrt{1-x^2}}dx$	$\operatorname{arcsen} x$	$\int \frac{1}{1+x^2}dx$	$\operatorname{arctg} x = \operatorname{arcsen}\frac{x}{\sqrt{1+x^2}}$
$\int \frac{x}{\sqrt{a-x^2}}dx$	$-\sqrt{a-x^2} \quad a>0$	$\int \frac{x}{\sqrt{a+x^2}}dx$	$\sqrt{a+x^2}$
$\int \operatorname{senh} x\,dx$	$\cosh x$	$\int \cosh x\,dx$	$\operatorname{senh} x$
$\int \frac{1}{\operatorname{senh}^2 x}dx$	$-\frac{1}{\operatorname{tgh} x}$	$\int \frac{1}{\cosh^2 x}dx$	$\tanh x$

FUNZIONE LINEARE

$L=ax+b$	
$\int L^n dx$	$\frac{L^{n+1}}{a(n+1)} \quad (n\neq -1)$
$\int \frac{1}{L}dx$	$\frac{1}{a}\ln\lvert L\rvert$
$\int \frac{1}{L^n}dx$	$-\frac{1}{a(n-1)L^{n-1}} \quad (n\neq 1)$
$\int \frac{x}{L}dx$	$\frac{1}{a^2}[L-b\ln\lvert L\rvert]$
$\int \frac{x}{L^n}dx$	$\frac{1}{a^2}\left[-\frac{1}{(n-2)L^{n-2}}+\frac{b}{(n-1)L^{n-1}}\right]=\frac{L^{1-n}(ax-b-anx)}{a^2(n^2-3n+2)}$
$\int \frac{x^2}{L}dx$	$\frac{x(ax-2b)}{2a^2}+\frac{b^2\ln\lvert L\rvert}{a^3}$
$\int \frac{x^2}{L^n}dx$	$\frac{1}{a^3}\left[-\frac{1}{(n-3)L^{n-3}}+\frac{2b}{(n-2)L^{n-2}}-\frac{b^2}{(n-1)L^{n-1}}\right]$
$\int \frac{x^3}{L}dx$	$\frac{b^2x}{a^3}-\frac{bx^2}{2a^2}+\frac{x^3}{3a}-\frac{b^3}{a^4}\ln\lvert L\rvert$
$\int \frac{1}{xL}dx$	$\frac{\ln\lvert x\rvert-\ln\lvert L\rvert}{b}$
$\int \frac{1}{xL^2}dx$	$\frac{1}{bL}+\frac{\ln\lvert x\rvert-\ln\lvert L\rvert}{b^2}$
$\int \frac{1}{xL^3}dx$	$\frac{1}{2bL^2}+\frac{1}{b^2L}+\frac{\ln\lvert x\rvert-\ln\lvert L\rvert}{b^3}$
$\int \frac{1}{x^2L}dx$	$-\frac{b+ax\ln\lvert x\rvert}{b^2x}+\frac{a\ln\lvert L\rvert}{b^2}$
$\int \frac{1}{x^2L^2}dx$	$-\frac{1}{b^2x}-\frac{a}{b^2L}-2a\frac{\ln\lvert x\rvert-\ln\lvert L\rvert}{b^3}$
$\int \frac{1}{x^2L^3}dx$	$-\frac{1}{b^3x}-\frac{a}{2b^2L^2}-\frac{2a}{b^3L}-3a\frac{\ln\lvert x\rvert-\ln\lvert L\rvert}{b^4}$

$A=a+x,\ B=b+x$	
$\int \frac{1}{AB}dx$	$-\frac{\ln\lvert A\rvert-\ln\lvert B\rvert}{a-b}$
$\int \frac{x}{A^2B}dx$	$\frac{1}{(a-b)A}-\frac{\ln\lvert A\rvert-\ln\lvert B\rvert}{(a-b)^2}$
$\int \frac{1}{AB^2}dx$	$-\frac{1}{(a-b)B}+\frac{\ln\lvert A\rvert-\ln\lvert B\rvert}{(a-b)^2}$
$\int \frac{1}{A^2B^2}dx$	$-\frac{1}{(a-b)^2A}-\frac{1}{(a-b)^2B}+2\frac{\ln\lvert A\rvert-\ln\lvert B\rvert}{(a-b)^3}$

FUNZIONE QUADRATICA

	$Q=x^2+a^2$	$Q=a^2-x^2$
$\int \frac{1}{Q}dx$	$\frac{1}{a}\operatorname{arctg}\frac{x}{\lvert a\rvert}$	$\frac{1}{2a}\ln\left\lvert\frac{a+x}{a-x}\right\rvert=\frac{1}{a}\operatorname{arctgh}\frac{x}{a}$
$\int \frac{1}{Q^2}dx$	$\frac{x}{2a^2Q}+\frac{1}{2a^3}\operatorname{arctg}\frac{x}{a}$	$\frac{x}{2a^2Q}+\frac{1}{2a^3}\operatorname{arctgh}\frac{x}{a}$
$\int \frac{x}{Q}dx$	$\frac{\ln\lvert Q\rvert}{2}$	$-\frac{\ln\lvert Q\rvert}{2}$
$\int \frac{x}{Q^2}dx$	$-\frac{1}{2Q}$	$\frac{1}{2Q}$
$\int \frac{x}{Q^3}dx$	$-\frac{1}{4Q^2}$	$\frac{1}{4Q^2}$
$\int \frac{x}{Q^n}dx$	$\frac{Q^{1-n}}{2(1-n)}$	$-\frac{Q^{1-n}}{2(1-n)}$
$\int \frac{x^2}{Q}dx$	$x-a\operatorname{arctg}\frac{x}{a}$	$-x+a\operatorname{arctgh}\frac{x}{a}$
$\int \frac{x^2}{Q^2}dx$	$-\frac{x}{2Q}+\frac{1}{2a}\operatorname{arctg}\frac{x}{a}$	$\frac{x}{2Q}-\frac{1}{2a}\operatorname{arctgh}\frac{x}{a}$
$\int \frac{x^3}{Q^2}dx$	$\frac{a^2}{2Q}+\frac{\ln\lvert Q\rvert}{2}$	$\frac{a^2}{2Q}+\frac{\ln\lvert Q\rvert}{2}$
$\int \frac{1}{xQ}dx$	$\frac{2\ln\lvert x\rvert-\ln\lvert Q\rvert}{2a^2}$	$\frac{2\ln\lvert x\rvert-\ln\lvert Q\rvert}{2a^2}$
$\int \frac{1}{xQ^2}dx$	$\frac{1}{2a^2Q}+\frac{2\ln\lvert x\rvert-\ln\lvert Q\rvert}{2a^4}$	$\frac{1}{2a^2Q}+\frac{2\ln\lvert x\rvert-\ln\lvert Q\rvert}{2a^4}$
$\int \frac{1}{x^2Q}dx$	$-\frac{1}{a^2x}-\frac{1}{a^2}\operatorname{arctg}\frac{x}{a}$	$-\frac{1}{a^2x}+\frac{1}{a^2}\operatorname{arctgh}\frac{x}{a}$
$\int \frac{1}{x^2Q^2}dx$	$-\frac{1}{a^4x}-\frac{x}{2a^4Q}-\frac{3}{2a^5}\operatorname{arctg}\frac{x}{a}$	$-\frac{1}{a^4x}+\frac{x}{2a^4Q}+\frac{3}{2a^5}\operatorname{arctgh}\frac{x}{a}$

$P=ax^2+bx+c,\quad \Delta=b^2-4ac$	
$\int \frac{1}{P}dx$	$-\frac{2}{\sqrt{\Delta}}\operatorname{arctgh}\frac{b+2ax}{\sqrt{\Delta}}$
$\int \frac{1}{P^2}dx$	$-\frac{b+2ax}{\Delta P}+\frac{4a}{\sqrt{\Delta^3}}\operatorname{arctgh}\frac{b+2ax}{\sqrt{\Delta}}$
$\int \frac{x}{P}dx$	$\frac{b}{a\sqrt{\Delta}}\operatorname{arctgh}\frac{b+2ax}{\sqrt{\Delta}}+\frac{\ln\lvert P\rvert}{2a}$
$\int \frac{x}{P^2}dx$	$\frac{2c+bx}{\Delta P}-\frac{2b}{\sqrt{\Delta^3}}\operatorname{arctgh}\frac{b+2ax}{\sqrt{\Delta}}$
$\int \frac{1}{xP}dx$	$\frac{b}{c\sqrt{\Delta}}\operatorname{arctgh}\frac{b+2ax}{\sqrt{\Delta}}+\frac{2\ln\lvert x\rvert-\ln\lvert P\rvert}{2c}$
$\int \frac{1}{xP^2}dx$	$\frac{bP-2ac}{c\Delta P}+\frac{b^3-6abc}{c^2\sqrt{\Delta^3}}\operatorname{arctgh}\frac{b+2ax}{\sqrt{\Delta}}+\frac{2\ln\lvert x\rvert-\ln\lvert P\rvert}{2c^2}$

FUNZIONI IRRAZIONALI

	$F=\sqrt{x^2-a^2}$ $(x^2>a^2)$	$F=\sqrt{a^2-x^2}$ $(x^2<a^2)$
$\int \frac{1}{F}dx$	$\ln\lvert x+F\rvert$	$\arcsin\frac{x}{\lvert a\rvert}=\operatorname{arctg}\frac{x}{F}$
$\int \frac{1}{xF}dx$	$-\frac{1}{a}\operatorname{arctg}\frac{a}{F}$	$\frac{1}{a}\ln\left\lvert\frac{x}{a(a+F)}\right\rvert$
$\int \frac{1}{xF^3}dx$	$-\frac{1}{a^2F}+\frac{1}{a^3}\operatorname{arctg}\frac{a}{F}$	$\frac{1}{a^2F}+\frac{1}{a^3}\ln\left\lvert\frac{x}{a^3(a+F)}\right\rvert$
$\int \frac{1}{x^2F}dx$	$\frac{F}{a^2x}$	$-\frac{F}{a^2x}$
$\int F\,dx$	$\frac{1}{2}(xF-a^2\ln\lvert x+F\rvert)$	$\frac{1}{2}\left(xF+a^2\arcsin\frac{x}{a}\right)$
$\int F^3dx$	$\frac{F}{4}(x^3-\frac{5}{2}a^2x)+\frac{3}{8}a^4\ln\lvert x+F\rvert$	$\frac{F}{4}(\frac{5}{2}a^2x-x^3)+\frac{3}{8}a^4\arcsin\frac{x}{a}$
$\int xF^3dx$	$\frac{1}{5}F^5$	$-\frac{1}{5}F^5$
$\int x^2F\,dx$	$\frac{F}{4}\left(x^3-\frac{a^2x}{2}\right)-\frac{a^4}{8}\ln\lvert x+F\rvert$	$\frac{F}{4}(x^3-\frac{1}{2}a^2x)+\frac{1}{8}a^4\arcsin\frac{x}{a}$
$\int \frac{F}{x}dx$	$F+a\operatorname{arctg}\frac{a}{F}$	$F+a\ln\left\lvert\frac{x}{a(a+F)}\right\rvert$
$\int \frac{F}{x^2}dx$	$-\frac{F}{x}+\ln\lvert x+F\rvert$	$-\frac{F}{x}-\arcsin\frac{x}{a}$
$\int \frac{F^3}{x}dx$	$\frac{x^2-4a^2}{3}F-a^3\operatorname{arctg}\frac{a}{F}$	$\frac{4a^2-x^2}{3}F+a^3\ln\left\lvert\frac{x}{a(a+F)}\right\rvert$

$G=\sqrt{x^2+a^2}$	
$\int \frac{1}{G}dx$	$\ln\lvert x+G\rvert$
$\int \frac{1}{G^3}dx$	$\frac{x}{a^2G}$
$\int \frac{x^3}{G}dx$	$\frac{x^2-2a^2}{3}G$
$\int \frac{1}{xG}dx$	$\frac{1}{a}\ln\left\lvert\frac{x}{a(a+G)}\right\rvert$
$\int \frac{1}{xG^3}dx$	$\frac{1}{a^2G}+\frac{1}{a^3}\ln\left\lvert\frac{x}{a^3(a+G)}\right\rvert$
$\int G\,dx$	$\frac{1}{2}(xG+a^2\ln\lvert x+G\rvert)$
$\int G^3dx$	$G\left(\frac{5a^2x}{8}+\frac{x^3}{4}\right)+\frac{3a^4}{8}\ln\lvert x+G\rvert$
$\int xG^3dx$	$\frac{1}{5}G^5$
$\int \frac{G}{x}dx$	$G+a\ln\left\lvert\frac{x}{a(a+G)}\right\rvert$
$\int \frac{G^3}{x}dx$	$\frac{x^2+4a^2}{3}G+a^3\ln\left\lvert\frac{x}{a(a+G)}\right\rvert$
$\int \frac{G}{x^2}dx$	$-\frac{G}{x}+\ln\lvert x+G\rvert$

FUNZIONI TRIGONOMETRICHE

	$F=\operatorname{sen}x$	$F=\cos x$
$\int xF\,dx$	$-x\cos x+\operatorname{sen}x$	$\cos x+x\operatorname{sen}x$
$\int x^2F\,dx$	$(2-x^2)\cos x+2x\operatorname{sen}x$	$2x\cos x+(x^2-2)\operatorname{sen}x$
$\int F^2dx$	$\frac{x}{2}-\frac{\operatorname{sen}2x}{4}$	$\frac{x}{2}+\frac{\operatorname{sen}2x}{4}$
$\int xF^2dx$	$\frac{x^2}{4}-\frac{\cos 2x}{8}-\frac{x\operatorname{sen}2x}{4}$	$\frac{x^2}{4}+\frac{\cos 2x}{8}+\frac{x\operatorname{sen}2x}{4}$
$\int x^2F^2dx$	$\frac{x^3}{6}-\frac{x\cos 2x}{4}+\frac{(1-2x^2)\operatorname{sen}2x}{8}$	$\frac{x^3}{6}+\frac{x\cos 2x}{4}-\frac{(1-2x^2)\operatorname{sen}2x}{8}$
$\int F^3dx$	$-\frac{3}{4}\cos x+\frac{\cos 3x}{12}$	$\frac{3}{4}\operatorname{sen}x+\frac{\operatorname{sen}3x}{12}$
$\int xF^3dx$	$-\frac{3x\cos x}{4}+\frac{x\cos 3x}{12}+\frac{3\operatorname{sen}x}{4}-\frac{\operatorname{sen}3x}{36}$	$\frac{3\cos x}{4}+\frac{\cos 3x}{36}+\frac{3x\operatorname{sen}x}{4}+\frac{x\operatorname{sen}3x}{12}$
$\int \frac{1}{1+F}dx$	$\frac{2\operatorname{sen}\frac{x}{2}}{\cos\frac{x}{2}+\operatorname{sen}\frac{x}{2}}$	$\operatorname{tg}\frac{x}{2}$
$\int \frac{1}{1-F}dx$	$\frac{2\operatorname{sen}\frac{x}{2}}{\cos\frac{x}{2}-\operatorname{sen}\frac{x}{2}}$	$-\operatorname{cotg}\frac{x}{2}$
$\int \frac{F}{1+F}dx$	$\frac{x\cos\frac{x}{2}+(x-2)\operatorname{sen}\frac{x}{2}}{\cos\frac{x}{2}+\operatorname{sen}\frac{x}{2}}$	$x-\operatorname{tg}\frac{x}{2}$
$\int \frac{F}{1-F}dx$	$\frac{-x\cos\frac{x}{2}+(x+2)\operatorname{sen}\frac{x}{2}}{\cos\frac{x}{2}-\operatorname{sen}\frac{x}{2}}$	$-x-\operatorname{cotg}\frac{x}{2}$