Integral-Tabelle

Grund- / Stammintegrale

Quelle: Lothar Papula, Mathematik für Ingenieure und Naturwissenschaftler, Band 1, Vieweg, Wiesbaden 2009, ISBN 978-3-8348-0545-4, Tabelle Seite 445

$\int 0 \, dx = C$	$\int 1 \, dx = x + C$
$\int x^n \, dx = \frac{x^{n+1}}{n+1} + C \qquad (n \neq -1)$ (Potenzregel)	$\int \frac{1}{x} \, dx = \ln \lvert x \rvert + C$
$\int e^x \, dx = e^x + C$	$\int a^x \, dx = \frac{a^x}{\ln a} + C$
$\int \sin x \, dx = -\cos x + C$	$\int \cos x \, dx = \sin x + C$
$\int \frac{1}{\cos^2 x} \, dx = \tan x + C$	$\int \frac{1}{\sin^2 x} \, dx = -\cot x + C$
$\int \frac{1}{\sqrt{1 - x^2}} \, dx = \begin{cases} \arcsin x + C_1 \\ -\arccos x + C_2 \end{cases}$	$\int \frac{1}{1 + x^2} \, dx = \begin{cases} \arctan x + C_1 \\ -\operatorname{arccot} x + C_2 \end{cases}$
$\int \sinh x \, dx = \cosh x + C$	$\int \cosh x \, dx = \sinh x + C$
$\int \frac{1}{\cosh^2 x} \, dx = \tanh x + C$	$\int \frac{1}{\sinh^2 x} \, dx = -\coth x + C$
$\int \frac{1}{\sqrt{x^2 + 1}} \, dx = \operatorname{arsinh} x + C = \ln \left\lvert x + \sqrt{x^2 + 1} \right\rvert + C$	
$\int \frac{1}{\sqrt{x^2 - 1}} \, dx = \operatorname{arcosh} \lvert x \rvert + C = \ln \left\lvert x + \sqrt{x^2 - 1} \right\rvert + C \qquad (\lvert x \rvert > 1)$	
$\int \frac{1}{1 - x^2} \, dx = \begin{cases} \operatorname{artanh} x + C_1 = \frac{1}{2} \cdot \ln \left(\frac{1 + x}{1 - x} \right) + C_1 & \lvert x \rvert < 1 \\ & \text{für} \\ \operatorname{arcoth} x + C_2 = \frac{1}{2} \cdot \ln \left(\frac{x + 1}{x - 1} \right) + C_2 & \lvert x \rvert > 1 \end{cases}$	