Differentiationsformeln

x^n	$nx^{n-1}, \quad n \neq 1$
e^x	e^x
a^x	$a^x \ln a, \quad a > 0$
$\ln\|x\|$	$\frac{1}{x}, \quad x \neq 0$
$\log_a x$	$\frac{1}{x \ln a}, \quad x > 0,\ a > 0$
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$\sin x$	$\cos x$
$\cos x$	$-\sin x$
$\mathrm{tg} x$	$\frac{1}{\cos^2 x}, \quad x \neq (2k+1)\frac{\pi}{2}$
$\mathrm{ctg} x$	$-\frac{1}{\sin^2 x}, \quad x \neq k\pi$
$\arcsin x$	$\frac{1}{\sqrt{1-x^2}}, \quad \|x\| < 1$
$\arccos x$	$-\frac{1}{\sqrt{1-x^2}}, \quad \|x\| < 1$
$\mathrm{arctg} x$	$\frac{1}{1+x^2}$
$\mathrm{arcctg} x$	$-\frac{1}{1+x^2}$
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$\mathrm{sh} x$	$\mathrm{ch} x$
$\mathrm{ch} x$	$\mathrm{sh} x$
$\mathrm{th} x$	$\frac{1}{\mathrm{ch}^2 x}$
$\mathrm{cth} x$	$-\frac{1}{\mathrm{sh}^2 x}$
$\mathrm{arsh} x$	$\frac{1}{\sqrt{x^2+1}}$
$\mathrm{arch} x$	$\frac{1}{\sqrt{x^2-1}}, \quad x > 1$
$\mathrm{arth} x$	$\frac{1}{1-x^2}, \quad \|x\| < 1$
$\mathrm{arcth} x$	$\frac{1}{1-x^2}, \quad \|x\| > 1$

weitere Formeln

$$\cos^2 x = \frac{1+\cos 2x}{2}$$

$$\sin^2 x = \frac{1-\cos 2x}{2}$$

$$\sin x \sin y = \frac{1}{2}(\cos(x-y) - \cos(x+y))$$

$$\sin x \cos y = \frac{1}{2}(\sin(x+y) + \sin(x-y))$$

$$\cos x \cos y = \frac{1}{2}(\cos(x+y) + \cos(x-y))$$

$$\mathrm{tg}(x \pm y) = \frac{\mathrm{tg} x \pm \mathrm{tg} y}{1 \mp \mathrm{tg} x \mathrm{tg} y}$$

$$t = \mathrm{tg}\frac{x}{2},\ \sin x = \frac{2t}{1+t^2},$$

$$\cos x = \frac{1-t^2}{1+t^2},\ \frac{dx}{dt} = \frac{2}{1+t^2}$$

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$$\mathrm{ch}^2 x - \mathrm{sh}^2 x = 1$$

$$\mathrm{arsh} x = \ln(x + \sqrt{x^2+1})$$

$$\mathrm{arch} x = \ln(x + \sqrt{x^2-1}),\ x \geq 1$$

$$\mathrm{arth} x = \frac{1}{2}\ln\frac{1+x}{1-x},\ |x| < 1$$

$$\mathrm{arcth} x = \frac{1}{2}\ln\frac{x+1}{x-1},\ |x| > 1$$

$$\mathrm{ch}^2 x = \frac{\mathrm{ch} 2x + 1}{2},\ \mathrm{sh}^2 x = \frac{\mathrm{ch} 2x - 1}{2}$$