Derivace elementárních funkcí

$f(x)$	$f'(x)$	*pozn.*
c	0	$c = const.$
x^n	nx^{n-1}	$n \in \mathbb{R}$
e^x	e^x	
$\ln x$	$\frac{1}{x}$	
a^x	$a^x \ln a$	$a > 0, a \neq 1$
x^x	$x^x(1 + \ln x)$	
$\log_a x$	$\frac{1}{x \ln a}$	$a > 0, a \neq 1$
$\sin x$	$\cos x$	
$\cos x$	$-\sin x$	
$\mathrm{tg}\, x$	$\frac{1}{\cos^2 x}$	
$\mathrm{cotg}\, x$	$-\frac{1}{\sin^2 x}$	
$\arcsin x$	$\frac{1}{\sqrt{1-x^2}}$	
$\arccos x$	$-\frac{1}{\sqrt{1-x^2}}$	
$\mathrm{arctg}\, x$	$\frac{1}{1+x^2}$	$= -(\mathrm{arccot}\, x)'$
$\sinh x$	$\cosh x$	
$\cosh x$	$\sinh x$	
$\mathrm{tgh}\, x$	$\frac{1}{\cosh^2 x}$	
$\mathrm{cotgh}\, x$	$-\frac{1}{\sinh^2 x}$	
$\mathrm{argsinh}\, x$	$\frac{1}{\sqrt{x^2+1}}$	
$\mathrm{argcosh}\, x$	$\frac{1}{\sqrt{x^2-1}}$	
$\mathrm{argtgh}\, x$	$\frac{1}{1-x^2}$	$= (\mathrm{argcoth}\, x)'$

Základní pravidla pro výpočet derivací

$$(f+g)' = f' + g'$$

$$(fg)' = f'g + fg' \quad \Rightarrow \quad (cf)' = cf'$$

$$\left(\frac{f}{g}\right)' = \frac{f'g - fg'}{g^2} \quad \Rightarrow \quad \left(\frac{1}{f}\right)' = -\frac{f'}{f^2}$$

$$\left[f\big(g(x)\big)\right]' = f' \cdot g' = \frac{\mathrm{d}f}{\mathrm{d}y} \cdot \frac{\mathrm{d}y}{\mathrm{d}x} \quad \text{kde} \quad y = g(x), z = f(y)$$

$$[f^{-1}(y)]' = \frac{1}{f'(x)}\bigg|_{x = f^{-1}(y)} \quad \text{kde} \quad y = f(x), x = f^{-1}(y)$$