Derivace elementárních funkcí

- pokud nejsou uvedeny omezující podmínky, pak proměnná x a všechny konstanty náleží do $\mathbb{R}$.

$$y = c \quad = \quad y' = 0, \quad c = \text{konstanta} \tag{1}$$

$$y = x^n \quad = \quad y' = nx^{n-1}, \quad n \in \mathbb{N}, \tag{2}$$

$$y = x^{-n} \quad = \quad y' = -nx^{-n-1}, \quad n \in \mathbb{N} \ \wedge \ x \neq 0, \tag{3}$$

$$y = a^x \quad = \quad y' = a^x \ln a, \quad a > 0, \tag{4}$$

$$y = e^x \quad = \quad y' = e^x, \tag{5}$$

$$y = \ln x \quad = \quad y' = \frac{1}{x}, \quad x > 0, \tag{6}$$

$$y = \sin x \quad = \quad y' = \cos x, \tag{7}$$

$$y = \cos x \quad = \quad y' = -\sin x, \tag{8}$$

$$y = \operatorname{tg} x \quad = \quad y' = \frac{1}{\cos^2 x}, \quad x \neq (2k+1)\pi/2, \ k \in \mathbb{Z}, \tag{9}$$

$$y = \operatorname{cotg} x \quad = \quad y' = -\frac{1}{\sin^2 x}, \quad x \neq k\pi, \ k \in \mathbb{Z}, \tag{10}$$

$$y = \arcsin x \quad = \quad y' = \frac{1}{\sqrt{1-x^2}}, \quad |x| < 1, \tag{11}$$

$$y = \arccos x \quad = \quad y' = -\frac{1}{\sqrt{1-x^2}}, \quad |x| < 1, \tag{12}$$

$$y = \operatorname{arctg} x \quad = \quad y' = \frac{1}{1+x^2}, \tag{13}$$

$$y = \operatorname{arccotg} x \quad = \quad y' = -\frac{1}{1+x^2}, \tag{14}$$

$$y = \ln f(x) \quad = \quad y' = \frac{f'(x)}{f(x)}, \quad f(x) > 0. \tag{15}$$