単項式

$$\frac{\mathrm{d}}{\mathrm{d}x}x^n = nx^{n-1} \tag{1}$$

三角関数

$$\frac{\mathrm{d}}{\mathrm{d}x}\sin x = \cos x \qquad \frac{\mathrm{d}}{\mathrm{d}x}\cos x = -\sin x \qquad \frac{\mathrm{d}}{\mathrm{d}x}\tan x = \frac{1}{\cos^2 x} \tag{2}$$

逆三角関数

$$\frac{\mathrm{d}}{\mathrm{d}x}\arcsin x = \frac{1}{\sqrt{1-x^2}} \qquad \arcsin : [-1,1] \to \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \tag{3}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\arccos x = -\frac{1}{\sqrt{1-x^2}} \qquad \arccos : [-1,1] \to [0,\pi] \tag{4}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\arctan x = \frac{1}{1+x^2} \qquad \arctan : \mathbb{R} \to \left[-\frac{\pi}{2}, \frac{\pi}{2}\right] \tag{5}$$

双曲線関数

$$\frac{\mathrm{d}}{\mathrm{d}x}\sinh x = \frac{\mathrm{d}}{\mathrm{d}x}\left(\frac{e^x - e^{-x}}{2}\right) = \frac{e^x + e^{-x}}{2} = \cosh x \tag{6}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\cosh x = \frac{\mathrm{d}}{\mathrm{d}x}\left(\frac{e^x + e^{-x}}{2}\right) = \frac{e^x - e^{-x}}{2} = \sinh x \tag{7}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\tanh x = \frac{\mathrm{d}}{\mathrm{d}x}\left(\frac{e^x - e^{-x}}{e^x + e^{-x}}\right) = \frac{1}{\cosh^2 x} \tag{8}$$

逆双曲線関数

$$\frac{\mathrm{d}}{\mathrm{d}x}\operatorname{arcsinh} x = \frac{\mathrm{d}}{\mathrm{d}x}\log\left(x + \sqrt{x^2+1}\right) = \frac{1}{\sqrt{x^2+1}} \tag{9}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\operatorname{arccosh} x = \frac{\mathrm{d}}{\mathrm{d}x}\log\left(x \pm \sqrt{x^2-1}\right) = \frac{1}{\sqrt{x^2-1}} \tag{10}$$

$$\frac{\mathrm{d}}{\mathrm{d}x}\operatorname{arctanh} x = \frac{\mathrm{d}}{\mathrm{d}x}\left(\frac{1}{2}\log\frac{1+x}{1-x}\right) = \frac{1}{1-x^2} \tag{11}$$

指数対数関数

$$\frac{\mathrm{d}}{\mathrm{d}x}e^x = e^x \qquad \frac{\mathrm{d}}{\mathrm{d}x}a^x = a^x \log a \qquad \frac{\mathrm{d}}{\mathrm{d}x}\log x = \frac{1}{x} \qquad \frac{\mathrm{d}}{\mathrm{d}x}\log_a x = \frac{1}{x \log a} \tag{12}$$

積の微分

$$\frac{\mathrm{d}}{\mathrm{d}x}\left(f(x) \times g(x)\right) = f(x) \times \frac{\mathrm{d}g}{\mathrm{d}x}(x) + g(x) \times \frac{\mathrm{d}f}{\mathrm{d}x}(x) \tag{13}$$

合成関数

$$\frac{\mathrm{d}}{\mathrm{d}x}f(g(x)) = \frac{\mathrm{d}f}{\mathrm{d}x}(g(x)) \times \frac{\mathrm{d}g}{\mathrm{d}x}(x) \tag{14}$$