## Elemi függvények deriváltja

$\mathcal{D}_f$ és $\mathcal{D}_{f'}$	f(x)	f'(x)	f képe
$\mathbb{R}$	$c \\ (c \in \mathbb{R})$	0	y ↑ cx
$\mathbb{R}\setminus\{0\}$	$x^n$ $(n \in \mathbb{Z})$	$nx^{n-1}$	
$\mathcal{D}_f = [0, +\infty)$ $\mathcal{D}_{f'} = (0, +\infty)$	$\sqrt{x}$	$\frac{1}{2\sqrt{x}}$	<i>y</i>
$\mathbb{R}\setminus\{0\}$	$\frac{1}{x}$	$-\frac{1}{x^2}$	y
$(0,+\infty)$	$x^{\alpha}$ $(\alpha \in \mathbb{R})$	$\alpha x^{\alpha-1}$	$\begin{array}{c c} y & & & \\ \hline 1 & & & \\ \hline & & & \\ \hline & & & \\ \hline & & & \\ & & & \\ \hline & & & \\ \hline & & & \\ & & & \\ \hline & \\ \hline & & \\ \hline & \\ \hline & \\ \hline & & \\ \hline & \\ \hline & & \\ \hline \\ \hline$
$\mathbb{R}$	$e^x$	$e^x$	y ↑ / 1 → x
$(0,+\infty)$	$\ln x$	$\frac{1}{x}$	$\xrightarrow{y}$
$\mathbb{R}$	$a^x$ $(a \in (0, +\infty))$	$a^x \ln a$	$\begin{array}{c c} & & & & \\ & & & & \\ & & & & \\ & & & & $
$(0, +\infty)$	$\log_a x$ $(a \in \mathbb{R}^+ \setminus \{1\})$	$\frac{1}{x \ln a}$	$\begin{array}{c} y \\ a > 1 \\ \hline \\ 0 < a < 1 \end{array}$
$\mathbb{R}$	$\sin x$	$\cos x$	$ \begin{array}{c c} 1 & y \\ \hline -2\pi & \frac{\pi}{2} & 2\pi \\ \hline -1 & \end{array} $
$\mathcal{D}_f = [-1, 1]$ $\mathcal{D}_{f'} = (-1, 1)$	$\arcsin x$	$\frac{1}{\sqrt{1-x^2}}$	$ \begin{array}{c c} \frac{\pi}{2} & y \\ \hline -1 & 0 & 1 \\ -\frac{\pi}{2} \end{array} $
$\mathbb{R}$	$\cos x$	$-\sin x$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\mathcal{D}_f = [-1, 1]$ $\mathcal{D}_{f'} = (-1, 1)$	$\arccos x$	$-\frac{1}{\sqrt{1-x^2}}$	$\frac{y}{\pi}$

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$\mathbb{R} \setminus \{ \frac{\pi}{2} + k\pi \mid k \in \mathbb{Z} \}$	$\operatorname{tg} x$	$\frac{1}{\cos^2 x}$	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\mathbb{R}$	$\operatorname{arctg} x$	$\frac{1}{1+x^2}$	$ \begin{array}{c c} y \wedge \frac{\pi}{2} \\ \hline -\frac{\pi}{2} \end{array} $
$\mathbb{R}\setminus\{k\pi\mid k\in\mathbb{Z}\}$	$\operatorname{ctg} x$	$-\frac{1}{\sin^2 x}$	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$
$\mathbb{R}$	$\operatorname{arcctg} x$	$-\frac{1}{1+x^2}$	y Λ π π <sub>2</sub>
$\mathbb{R}$		$\operatorname{ch} x$	y = x
$\mathbb{R}$	$\operatorname{arsh} x \\ \left(=\ln(x+\sqrt{x^2+1})\right)$	$\frac{1}{\sqrt{x^2+1}}$	<b>A</b> <i>y</i>
$\mathbb{R}$		$\operatorname{sh} x$	1
$\mathcal{D}_f = [1, +\infty)$ $\mathcal{D}_{f'} = (1, +\infty)$	$\operatorname{arch} x = \left(=\ln(x+\sqrt{x^2-1})\right)$	$\frac{1}{\sqrt{x^2 - 1}}$	$y = x$ $\downarrow \qquad \qquad \downarrow \qquad \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \downarrow \qquad \qquad \downarrow \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \qquad \downarrow \qquad \qquad \qquad \downarrow $
$\mathbb{R}$		$\frac{1}{\cosh^2 x}$	y 1 y = x →x
(-1,1)	$\operatorname{arth} x \\ \left(= \frac{1}{2} \ln \frac{1+x}{1-x}\right)$	$\frac{1}{1-x^2}$	$\begin{array}{c} 1 \\ 1 \\ 1 \end{array}$
$\mathbb{R}\setminus\{0\}$	$ cth x  (:= \frac{ch x}{sh x}) $	$-\frac{1}{\sinh^2 x}$	y ↑
$(-\infty, -1) \cup (1, +\infty)$	$\operatorname{arcth} x \\ \left(= \frac{1}{2} \ln \frac{x+1}{x-1} \right)$	$\frac{1}{1-x^2}$	x