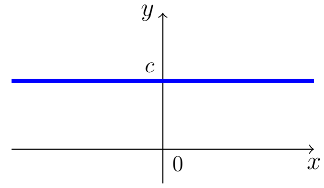
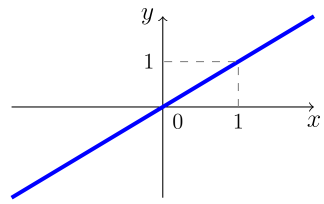
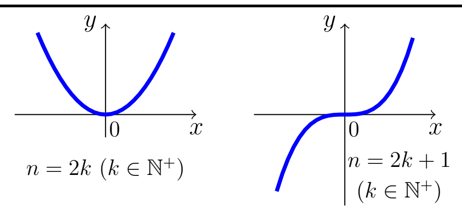
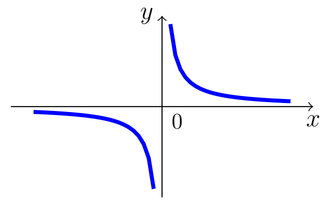
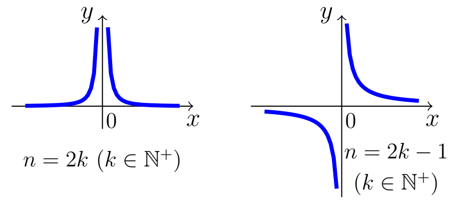
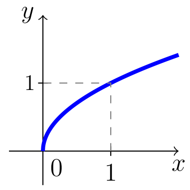
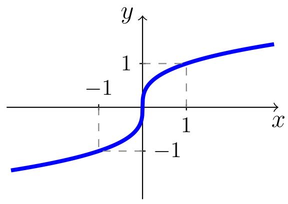
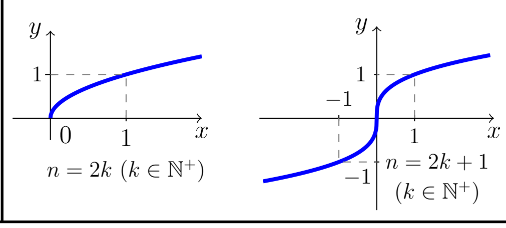
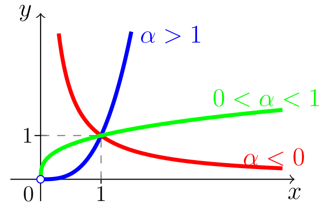
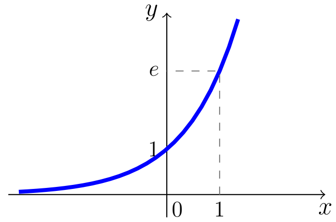
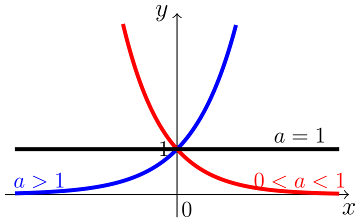
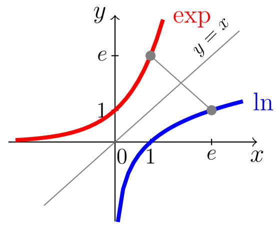
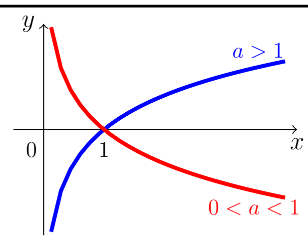
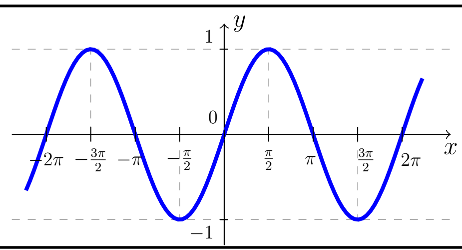
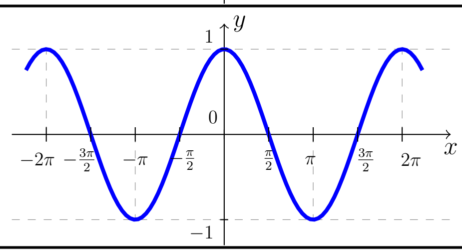
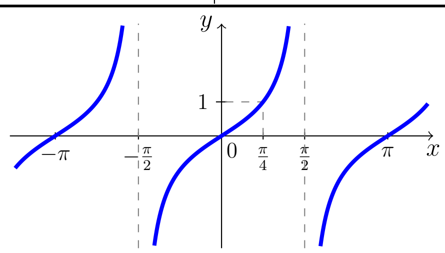
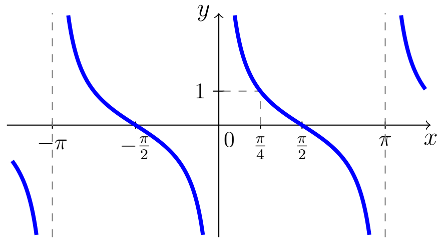
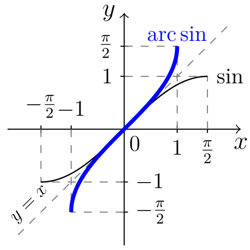
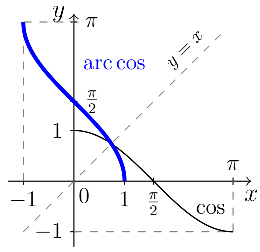
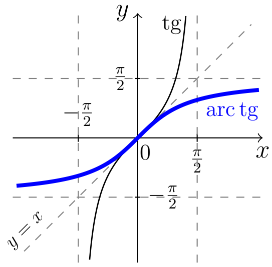
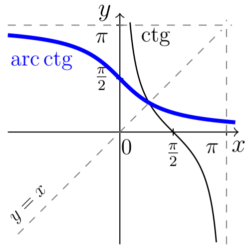
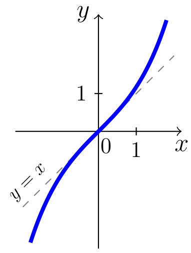
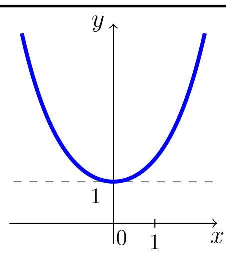
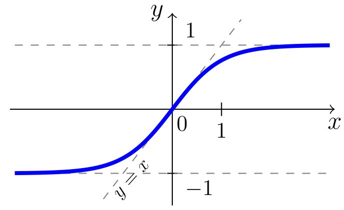
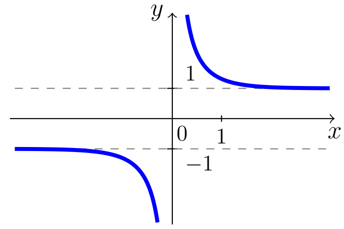
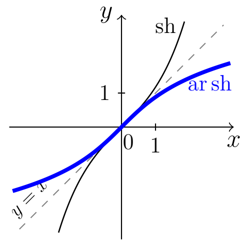
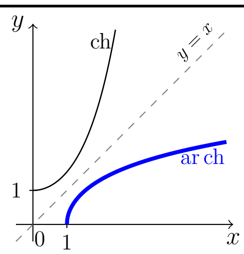
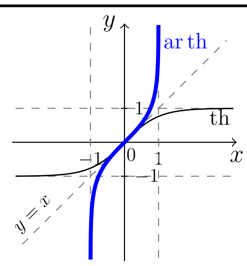
NEVEZETES FÜGGVÉNYEK DERIVÁLTJAI

$\mathcal{D}_f$ és $\mathcal{D}'_f$	$f(x)$	$f'(x)$	f grafikonja
$\mathbb{R}$	c $(c \in \mathbb{R})$	0	
$\mathbb{R}$	x	1	
$\mathbb{R}$	x^n $(n \in \mathbb{N})$	nx^{n-1}	
$\mathbb{R} \setminus \{0\}$	$x^{-1} := \dfrac{1}{x}$	$-x^{-2} = -\dfrac{1}{x^2}$	
$\mathbb{R} \setminus \{0\}$	$x^{-n} := \dfrac{1}{x^n}$ $(n \in \mathbb{N}^+)$	$-nx^{-n-1} = -\dfrac{n}{x^{n+1}}$	
$\mathcal{D}_f = [0, +\infty)$ $\mathcal{D}'_f = (0, +\infty)$	$x^{1/2} := \sqrt{x}$	$\dfrac{1}{2}\, x^{-1/2} = \dfrac{1}{2\sqrt{x}}$	
$\mathcal{D}_f = \mathbb{R}$ $\mathcal{D}'_f = \mathbb{R} \setminus \{0\}$	$x^{1/3} := \sqrt[3]{x}$	$\dfrac{1}{3}\, x^{-2/3} = \dfrac{1}{3\sqrt[3]{x^2}}$	
Ha n páros: $\mathcal{D}_f = [0 + \infty)$. Ha n páratlan: $\mathcal{D}_f = \mathbb{R}$. $\mathcal{D}'_f = \mathcal{D}_f \setminus \{0\}$	$x^{1/n} := \sqrt[n]{x}$ $(2 \le n \in \mathbb{N})$	$\dfrac{1}{n}\, x^{1/n-1} = \dfrac{1}{n\sqrt[n]{x^{n-1}}}$	

$\mathcal{D}_f$ és $\mathcal{D}'_f$	$f(x)$	$f'(x)$	f grafikonja
$(0,+\infty)$	$x^\alpha := \exp(\alpha \ln x)$ $(\alpha \in \mathbb{R})$	$\alpha x^{\alpha-1}$	
$\mathbb{R}$	$e^x := \exp(x)$ $:= \sum_{n=0}^{+\infty} \frac{x^n}{n!}$	e^x	
$\mathbb{R}$	$a^x := \exp_a(x)$ $:= \exp(x \ln a)$ $(a \in (0,+\infty))$	$a^x \ln a$	
$(0,+\infty)$	$\ln x := \exp^{-1}(x)$	$\frac{1}{x}$	
$(0,+\infty)$	$\log_a x := \exp_a^{-1}(x)$ $(\alpha \in \mathbb{R} \setminus \{1\})$	$\frac{1}{x \ln a}$	
$\mathbb{R}$	$\sin x$ $:= \sum_{n=0}^{+\infty} \frac{(-1)^n x^{2n+1}}{(2n+1)!}$	$\cos x$	
$\mathbb{R}$	$\cos x$ $:= \sum_{n=0}^{+\infty} \frac{(-1)^n x^{2n}}{(2n)!}$	$-\sin x$	
$\mathbb{R}\setminus\{\frac{\pi}{2}+k\pi \mid k \in \mathbb{Z}\}$	$\operatorname{tg} x := \frac{\sin x}{\cos x}$	$\frac{1}{\cos^2 x}$	

$\mathcal{D}_f$ és $\mathcal{D}'_f$	$f(x)$	$f'(x)$	f grafikonja
$\mathbb{R} \setminus \{k\pi \mid k \in \mathbb{Z}\}$	$\operatorname{ctg} x := \dfrac{\cos x}{\sin x}$	$-\dfrac{1}{\sin^2 x}$	
$\mathcal{D}_f = [-1, 1]$ $\mathcal{D}'_f = (-1, 1)$	$\arcsin x$ $:= \left(\sin\lvert_{[-\frac{\pi}{2}, \frac{\pi}{2}]}\right)^{-1}(x)$	$\dfrac{1}{\sqrt{1-x^2}}$	
$\mathcal{D}_f = [-1, 1]$ $\mathcal{D}'_f = (-1, 1)$	$\arccos x$ $:= \left(\cos\lvert_{[0, \pi]}\right)^{-1}(x)$	$-\dfrac{1}{\sqrt{1-x^2}}$	
$\mathbb{R}$	$\operatorname{arc\,tg} x$ $:= \left(\operatorname{tg}\lvert_{(-\frac{\pi}{2}, \frac{\pi}{2})}\right)^{-1}(x)$	$\dfrac{1}{1+x^2}$	
$\mathbb{R}$	$\operatorname{arc\,ctg} x$ $:= \left(\operatorname{ctg}\lvert_{(0, \pi)}\right)^{-1}$	$-\dfrac{1}{1+x^2}$	
$\mathbb{R}$	$\operatorname{sh} x := \dfrac{e^x - e^{-x}}{2}$ $= \displaystyle\sum_{n=0}^{+\infty} \frac{x^{2n+1}}{(2n+1)!}$	$\operatorname{ch} x$	
$\mathbb{R}$	$\operatorname{ch} x := \dfrac{e^x + e^{-x}}{2}$ $= \displaystyle\sum_{n=0}^{+\infty} \frac{x^{2n}}{(2n)!}$	$\operatorname{sh} x$	

$\mathcal{D}_f$ és $\mathcal{D}'_f$	$f(x)$	$f'(x)$	f grafikonja
$\mathbb{R}$	$\operatorname{th} x := \dfrac{\operatorname{sh} x}{\operatorname{ch} x}$	$\dfrac{1}{\operatorname{ch}^2 x}$	
$\mathbb{R} \setminus \{0\}$	$\operatorname{cth} x := \dfrac{\operatorname{ch} x}{\operatorname{sh} x}$	$-\dfrac{1}{\operatorname{sh}^2 x}$	
$\mathbb{R}$	$\operatorname{ar\,sh} x := \operatorname{sh}^{-1} x$ $= \ln\left(x + \sqrt{x^2+1}\right)$	$\dfrac{1}{\sqrt{x^2+1}}$	
$\mathcal{D}_f = [1, +\infty)$ $\mathcal{D}'_f = (1, +\infty)$	$\operatorname{ar\,ch} x :=$ $= \left(\operatorname{ch}\vert_{[0,+\infty)}\right)^{-1}(x)$ $= \ln\left(x + \sqrt{x^2-1}\right)$	$\dfrac{1}{\sqrt{x^2-1}}$	
$(-1, 1)$	$\operatorname{ar\,th} x := \operatorname{th}^{-1} x$ $= \frac{1}{2} \cdot \ln\left(\frac{1+x}{1-x}\right)$	$\dfrac{1}{1-x^2}$	
$(-\infty, -1) \cup$ $(1, +\infty)$	$\operatorname{ar\,cth} x$ $:= \operatorname{cth}^{-1} x$ $= \frac{1}{2} \cdot \ln\left(\frac{x+1}{x-1}\right)$	$\dfrac{1}{1-x^2}$