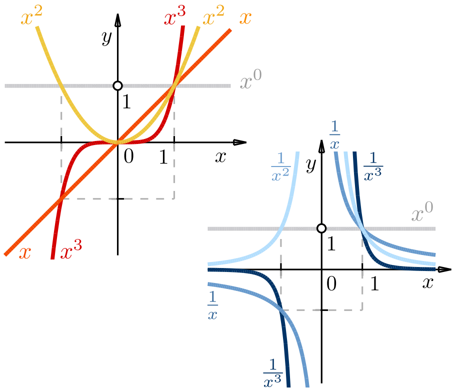
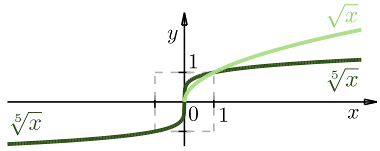
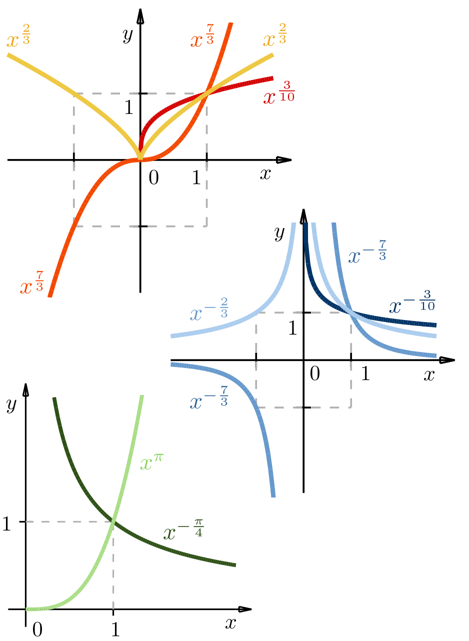
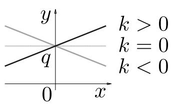
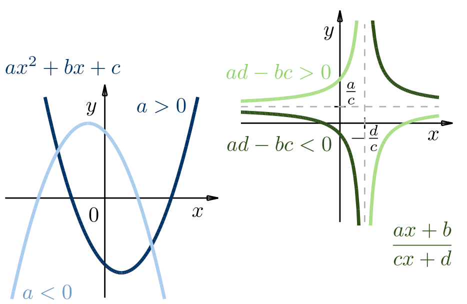
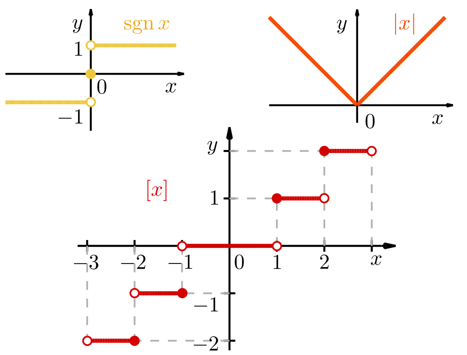
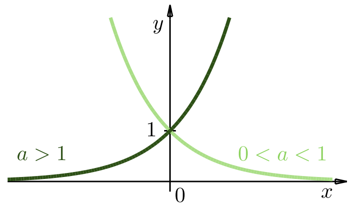
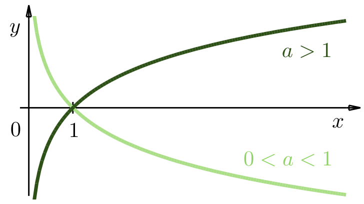
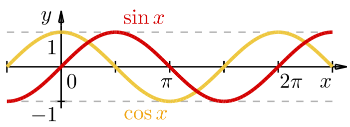
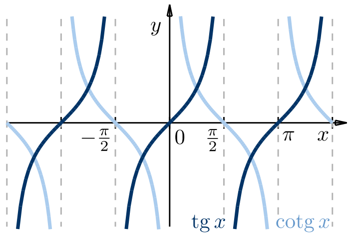
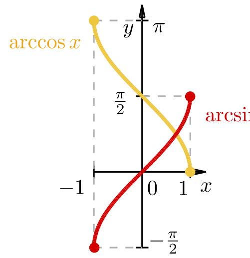
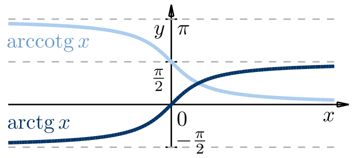
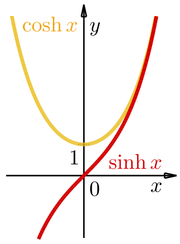
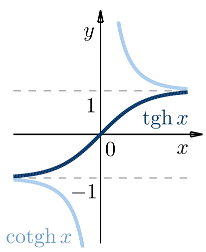
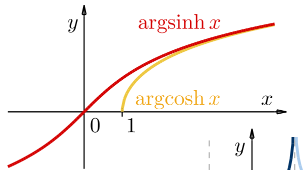
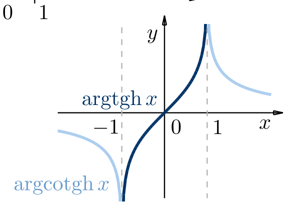
Reálné funkce jedné reálné proměnné

				$D(f)$	$H(f)$	pozn.	graf funkce f	$D(f')$	derivace f'
mocninná funkce s celým exponentem	$f\colon y = x^0$			$\mathbf{R}\setminus\{0\}$	$\{1\}$	sudá		$\mathbf{R}\setminus\{0\}$	$f'(x) = 0$
	$f\colon y = x^n$	$n \in \mathbf{N}$	n sudé	$\mathbf{R}$	$\langle 0,+\infty)$	sudá		$\mathbf{R}$	$f'(x) = nx^{n-1}$
			n liché	$\mathbf{R}$	$\mathbf{R}$	lichá		$\mathbf{R}$	
	$f\colon y = x^{-n}$	$n \in \mathbf{N}$	n sudé	$\mathbf{R}\setminus\{0\}$	$(0,+\infty)$	sudá		$\mathbf{R}\setminus\{0\}$	$f'(x) = -nx^{-n-1}$
			n liché	$\mathbf{R}\setminus\{0\}$	$\mathbf{R}\setminus\{0\}$	lichá		$\mathbf{R}\setminus\{0\}$	
n-tá odmocnina	$f\colon y = \sqrt[n]{x}$	$n \in \mathbf{N}$	n sudé	$\langle 0,+\infty)$	$\langle 0,+\infty)$			$(0,+\infty)$	$f'(x) = \frac{1}{n}x^{\frac{1}{n}-1}$
			n liché	$\mathbf{R}$	$\mathbf{R}$	lichá		$\mathbf{R}\setminus\{0\}$	
mocninná funkce s obecným exponentem	$f\colon y = x^{\frac{m}{n}}$	$m,n \in \mathbf{N}$	m sudé, n liché	$\mathbf{R}$	$\langle 0,+\infty)$	sudá		$\mathbf{R}\setminus\{0\}$ ($\mathbf{R}$ pro $m \geq n$)	$f'(x) = \frac{m}{n}x^{\frac{m}{n}-1}$
			m liché, n liché	$\mathbf{R}$	$\mathbf{R}$	lichá		$\mathbf{R}\setminus\{0\}$ ($\mathbf{R}$ pro $m \geq n$)	
			m liché, n sudé	$\langle 0,+\infty)$	$\langle 0,+\infty)$			$(0,+\infty)$	
	$f\colon y = x^{-\frac{m}{n}}$	$m,n \in \mathbf{N}$	m sudé, n liché	$\mathbf{R}\setminus\{0\}$	$(0,+\infty)$	sudá		$\mathbf{R}\setminus\{0\}$	$f'(x) = -\frac{m}{n}x^{-\frac{m}{n}-1}$
			m liché, n liché	$\mathbf{R}\setminus\{0\}$	$\mathbf{R}\setminus\{0\}$	lichá		$\mathbf{R}\setminus\{0\}$	
			m liché, n sudé	$(0,+\infty)$	$(0,+\infty)$			$(0,+\infty)$	
	$f\colon y = x^a$	$a \in \mathbf{R}\setminus\mathbf{Q}$	$a > 0$	$\langle 0,+\infty)$	$\langle 0,+\infty)$			$(0,+\infty)$	$f'(x) = ax^{a-1}$
			$a < 0$	$(0,+\infty)$	$(0,+\infty)$			$(0,+\infty)$	
	$f\colon y = q$			$\mathbf{R}$	$\{q\}$			$\mathbf{R}$	$f'(x) = 0$
	$f\colon y = kx + q$	$k \neq 0$		$\mathbf{R}$	$\mathbf{R}$			$\mathbf{R}$	$f'(x) = k$
	$f\colon y = ax^2 + bx + c$			$\mathbf{R}$				$\mathbf{R}$	$f'(x) = 2ax + b$
	$f\colon y = \dfrac{ax+b}{cx+d}$	$c \neq 0$, $bc - ad \neq 0$		$\mathbf{R}\setminus\{-\frac{d}{c}\}$	$\mathbf{R}\setminus\{\frac{a}{c}\}$			$\mathbf{R}\setminus\{-\frac{d}{c}\}$	$f'(x) = \dfrac{ad-bc}{(cx+d)^2}$
	$f\colon y = \operatorname{sgn} x$	$= \begin{cases} 1, & x > 0, \\ 0, & x = 0, \\ -1, & x < 0. \end{cases}$		$\mathbf{R}$	$\{-1,0,1\}$	lichá			
	$f\colon y = \lvert x\rvert$	$= \begin{cases} x, & x \geq 0, \\ -x, & x < 0. \end{cases}$		$\mathbf{R}$	$\langle 0,+\infty)$	sudá			
	$f\colon y = [x]$			$\mathbf{R}$	$\mathbf{Z}$	lichá			

$f(x)^{g(x)} = \mathrm{e}^{g(x)\ln f(x)}$

Reálné funkce jedné reálné proměnné

	transcendentní funkce	$D(f)$	$H(f)$	pozn.	graf funkce f	$D(f')$	derivace f'
exponenciální funkce	$f\colon y = a^x,\quad a>0,\ a\neq 1$ $f\colon y = \mathrm{e}^x$ $\mathrm{e} \doteq 2{,}718281828$	$\mathbf{R}$	$(0,+\infty)$			$\mathbf{R}$	$f'(x) = a^x \ln a$ $f'(x) = \mathrm{e}^x$
logaritmická funkce	$f\colon y = \log_a x,\quad a>0,\ a\neq 1$ $f\colon y = \log_{\mathrm{e}} x = \ln x$ $f\colon y = \log_{10} x = \log x$	$(0,+\infty)$	$\mathbf{R}$			$(0,+\infty)$	$f'(x) = \dfrac{1}{x\ln a}$ $f'(x) = \dfrac{1}{x}$ $f'(x) = \dfrac{1}{x\ln 10}$
goniometrické funkce	$f\colon y = \sin x$	$\mathbf{R}$	$\langle -1, 1\rangle$	period. $T = 2\pi$ lichá		$\mathbf{R}$	$f'(x) = \cos x$
	$f\colon y = \cos x$	$\mathbf{R}$	$\langle -1, 1\rangle$	period. $T = 2\pi$ sudá		$\mathbf{R}$	$f'(x) = -\sin x$
	$f\colon y = \mathrm{tg}\, x = \dfrac{\sin x}{\cos x}$	$\mathbf{R} \setminus \{(2k+1)\frac{\pi}{2},\ k\in\mathbf{Z}\}$	$\mathbf{R}$	period. $T = \pi$ lichá		$\mathbf{R} \setminus \{(2k+1)\frac{\pi}{2},\ k\in\mathbf{Z}\}$	$f'(x) = \dfrac{1}{\cos^2 x}$
	$f\colon y = \mathrm{cotg}\, x = \dfrac{\cos x}{\sin x}$	$\mathbf{R} \setminus \{k\pi,\ k\in\mathbf{Z}\}$	$\mathbf{R}$	period. $T = \pi$ lichá		$\mathbf{R} \setminus \{k\pi,\ k\in\mathbf{Z}\}$	$f'(x) = \dfrac{-1}{\sin^2 x}$
cyklometrické funkce	$f\colon y = \arcsin x$	$\langle -1, 1\rangle$	$\langle -\frac{\pi}{2}, \frac{\pi}{2}\rangle$	lichá		$(-1, 1)$	$f'(x) = \dfrac{1}{\sqrt{1-x^2}}$
	$f\colon y = \arccos x$	$\langle -1, 1\rangle$	$\langle 0, \pi\rangle$			$(-1, 1)$	$f'(x) = \dfrac{-1}{\sqrt{1-x^2}}$
	$f\colon y = \mathrm{arctg}\, x$	$\mathbf{R}$	$(-\frac{\pi}{2}, \frac{\pi}{2})$	lichá		$\mathbf{R}$	$f'(x) = \dfrac{1}{1+x^2}$
	$f\colon y = \mathrm{arccotg}\, x$	$\mathbf{R}$	$(0, \pi)$			$\mathbf{R}$	$f'(x) = \dfrac{-1}{1+x^2}$
hyperbolické funkce	$f\colon y = \sinh x = \dfrac{\mathrm{e}^x - \mathrm{e}^{-x}}{2}$	$\mathbf{R}$	$\mathbf{R}$	lichá		$\mathbf{R}$	$f'(x) = \cosh x$
	$f\colon y = \cosh x = \dfrac{\mathrm{e}^x + \mathrm{e}^{-x}}{2}$	$\mathbf{R}$	$\langle 1, +\infty)$	sudá		$\mathbf{R}$	$f'(x) = \sinh x$
	$f\colon y = \mathrm{tgh}\, x = \dfrac{\sinh x}{\cosh x}$	$\mathbf{R}$	$(-1, 1)$	lichá		$\mathbf{R}$	$f'(x) = \dfrac{1}{\cosh^2 x}$
	$f\colon y = \mathrm{cotgh}\, x = \dfrac{\cosh x}{\sinh x}$	$\mathbf{R} \setminus \{0\}$	$\mathbf{R} \setminus \langle -1, 1\rangle$	lichá		$\mathbf{R} \setminus \{0\}$	$f'(x) = \dfrac{-1}{\sinh^2 x}$
hyperbolometrické funkce	$f\colon y = \mathrm{argsinh}\, x$	$\mathbf{R}$	$\mathbf{R}$	lichá		$\mathbf{R}$	$f'(x) = \dfrac{1}{\sqrt{1+x^2}}$
	$f\colon y = \mathrm{argcosh}\, x$	$\langle 1, +\infty)$	$\langle 0, +\infty)$			$(1, +\infty)$	$f'(x) = \dfrac{1}{\sqrt{x^2-1}}$
	$f\colon y = \mathrm{argtgh}\, x$	$(-1, 1)$	$\mathbf{R}$	lichá		$(-1, 1)$	$f'(x) = \dfrac{1}{1-x^2}$
	$f\colon y = \mathrm{argcotgh}\, x$	$\mathbf{R} \setminus \langle -1, 1\rangle$	$\mathbf{R} \setminus \{0\}$	lichá		$\mathbf{R} \setminus \langle -1, 1\rangle$	$f'(x) = \dfrac{1}{1-x^2}$

přehled verze 002
LaTeX & Inkscape