

## Taylorův rozvoj v 0

$\sin x$	$x - \frac{x^3}{3!} + \frac{x^5}{5!} - \frac{x^7}{7!} + \dots + (-1)^n \frac{x^{2n+1}}{(2n+1)!} + o(x^{2n+2})$	$\sum_{n=0}^{\infty} (-1)^n \frac{x^{2n+1}}{(2n+1)!}$	$x \in (-\infty, \infty)$
$\cos x$	$1 - \frac{x^2}{2!} + \frac{x^4}{4!} - \frac{x^6}{6!} + \dots + (-1)^n \frac{x^{2n}}{(2n)!} + o(x^{2n+1})$	$\sum_{n=0}^{\infty} (-1)^n \frac{x^{2n}}{(2n)!}$	$x \in (-\infty, \infty)$
$\operatorname{tg} x$	$x + \frac{1}{3}x^3 + \frac{2}{15}x^5 + \frac{17}{315}x^7 + \dots$		$x \in \left(-\frac{\pi}{2}, \frac{\pi}{2}\right)$
$e^x$	$1 + x + \frac{x^2}{2!} + \frac{x^3}{3!} + \dots + \frac{x^n}{n!} + o(x^n)$	$\sum_{n=0}^{\infty} \frac{x^n}{n!}$	$x \in (-\infty, \infty)$
$\ln(1+x)$	$x - \frac{x^2}{2} + \frac{x^3}{3} - \frac{x^4}{4} + \frac{x^5}{5} - \dots + (-1)^{n+1} \frac{x^n}{n} + o(x^n)$	$\sum_{n=1}^{\infty} (-1)^{n+1} \frac{x^n}{n}$	$x \in (-1, 1]$
$\frac{1}{1-x}$	$1 + x + x^2 + x^3 + \dots + x^n + o(x^n)$	$\sum_{n=0}^{\infty} x^n$	$x \in (-1, 1)$
$a^x$	$1 + \frac{x \ln a}{1!} + \frac{x^2 \ln^2 a}{2!} + \frac{x^3 \ln^3 a}{3!} + \dots + \frac{(x \ln a)^n}{n!} + o(x^n)$	$\sum_{n=0}^{\infty} \frac{(x \ln a)^n}{n!}$	$a > 0, x \in (-\infty, \infty)$
$\ln \frac{1+x}{1-x}$	$2 \left[ x + \frac{x^3}{3} + \frac{x^5}{5} + \frac{x^7}{7} + \dots + \frac{x^{2n+1}}{2n+1} \right] + o(x^{2n+2})$	$2 \sum_{n=0}^{\infty} \frac{x^{2n+1}}{2n+1}$	$x \in (-1, 1)$
$(1+x)^r$	$1 + \binom{r}{1}x + \binom{r}{2}x^2 + \binom{r}{3}x^3 + \dots + \binom{r}{n}x^n + o(x^n)$	$\sum_{n=0}^{\infty} \binom{r}{n}x^n$	$r \in \mathbb{R}, x \in (-1, 1)$
neboli	$1 + rx + \frac{r(r-1)}{2!}x^2 + \dots + \frac{r(r-1)\dots(r-n+1)}{n!}x^n$		
$\arcsin x$	$x + \frac{1}{2} \frac{x^3}{3} + \frac{1}{24} \frac{x^5}{5} + \frac{1}{240} \frac{x^7}{7} + \dots + o(x^{2n+2})$	$\sum_{n=0}^{\infty} \frac{(2n-1)!!}{(2n)!!} \frac{x^{2n+1}}{2n+1}$	$x \in (-1, 1)$
$\arccos x$	$\frac{\pi}{2} - x - \frac{1}{2} \frac{x^3}{3} - \frac{1}{24} \frac{x^5}{5} - \frac{1}{240} \frac{x^7}{7} + \dots + o(x^{2n+2})$	$\frac{\pi}{2} - \sum_{n=0}^{\infty} \frac{(2n-1)!!}{(2n)!!} \frac{x^{2n+1}}{2n+1}$	$x \in (-1, 1)$
$\operatorname{arctg} x$	$x - \frac{x^3}{3} + \frac{x^5}{5} - \frac{x^7}{7} + \dots + (-1)^n \frac{x^{2n+1}}{2n+1} + o(x^{2n+2})$	$\sum_{n=0}^{\infty} (-1)^n \frac{x^{2n+1}}{2n+1}$	$x \in [-1, 1]$
$\sinh x$	$x + \frac{x^3}{3!} + \frac{x^5}{5!} + \dots + \frac{x^{2n+1}}{(2n+1)!} + o(x^{2n+2})$	$\sum_{n=0}^{\infty} \frac{x^{2n+1}}{(2n+1)!}$	$x \in (-\infty, \infty)$
$\cosh x$	$1 + \frac{x^2}{2!} + \frac{x^4}{4!} + \dots + \frac{x^{2n}}{(2n)!} + o(x^{2n+1})$	$\sum_{n=0}^{\infty} \frac{x^{2n}}{(2n)!}$	$x \in (-\infty, \infty)$

$$\binom{r}{n} = \frac{r(r-1)\dots(r-n+1)}{n!}$$

$$\arccos x = \frac{\pi}{2} - \arcsin x$$

$$(2n)!! = (2n)(2n-2)(2n-4)\dots 2$$

$$(2n-1)!! = (2n-1)(2n-3)(2n-5)\dots 1$$