Taylorův polynom, Taylorova řada

$$T_n(x) = f(x_0) + f'(x_0)(x-x_0) + \frac{f''(x_0)}{2}(x-x_0)^2 + \dots + \frac{f^{(n)}(x_0)}{n!}(x-x_0)^n$$

($f^{(n)}(x_0) = 1$)

x_0 .. střed polynomu

$f(x) = \exp(x), \quad x_0 = 0$

$$T_n = 1 + x + \frac{1}{2}x^2 + \dots + \frac{1}{n!}x^n = \sum_{k=0}^{n} \frac{1}{k!}x^k$$

($+\infty$)

$\frac{x^0}{0!} = 1 \qquad x = \frac{x}{1!} \qquad 2 = 2!$

$$T(x) = \sum_{k=0}^{\infty} \frac{f^{(k)}(x_0)}{k!}(x-x_0)^k$$

Úkol: $\sin(x)$, $\cos(x)$, $\log(x+1)$ $\quad x_0 = 0$

$\log \quad x_0 = 1$