Table 1.1. Taylor Approximations to e^x

x	$p_1(x)$	$p_2(x)$	$p_3(x)$	e^x
−1.0	0	0.500	0.33333	0.36788
−0.5	0.5	0.625	0.60417	0.60653
−0.1	0.9	0.905	0.90483	0.90484
0	1.0	1.000	1.00000	1.00000
0.1	1.1	1.105	1.10517	1.10517
0.5	1.5	1.625	1.64583	1.64872
1.0	2.0	2.500	2.66667	2.71828

$$f^{(j)}(x) = e^x, \qquad f^{(j)}(0) = 1, \qquad \text{for all } j \geq 0$$

$$p_n(x) = 1 + x + \frac{1}{2!}x^2 + \cdots + \frac{1}{n!}x^n = \sum_{j=0}^{n} \frac{x^j}{j!}$$

$f(x) = \log x$, $a = 1$, $f(1) = 0$

pochodne

$$f^{(j)}(x) = (-1)^{j-1}(j-1)!\frac{1}{x^j}$$
$$f^{(j)}(1) = (-1)^{j-1}(j-1)!, \qquad j \geq 1$$

ostateczny wzór

$$p_n(x) = (x-1) - \frac{1}{2}(x-1)^2 + \frac{1}{3}(x-1)^3 - \cdots + (-1)^{n-1}\frac{1}{n}(x-1)^n$$
$$= \sum_{j=1}^{n} \frac{(-1)^{j-1}}{j}(x-1)^j$$