$f(x)$
x_0
n
${}_n(x) = \sum_{k=0}^{n} \frac{f^{(k)}(x_0)}{k!}(x-x_0)^k = f(x_0) + \frac{f'(x_0)}{1!}(x-x_0) + \ldots + \frac{f^{(n)}(x_0)}{n!}(x-x_0)^n$
${}_n(x) = f(x) - P_n(x) = \frac{f^{(n+1)}(\xi)}{(n+1)!}(x-x_0)^{n+1}$
x
x^*
$e^* = x^* - x$
$e^* > 0$
$e^* < 0$
ε^*
$|e^*| = |x^* - x| \leq \varepsilon^*$
$e_r^* = \frac{e^*}{x} \approx \frac{e^*}{x^*}$
e_r^*
$\varepsilon_r^* = \frac{\varepsilon^*}{|x^*|}$

n

$$x^* = \pm 10^m \times (a_1 + a_2 \times 10^{-1} + \ldots + a_n \times 10^{-(n-1)})$$
(1)

$$\varepsilon^* = |x^* - x| \le \frac{1}{2} \times 10^{m-n+1}$$
(2)

Theorem .1

n

x^*

$$\varepsilon_r^* \le \frac{1}{2a_1} \times 10^{-(n-1)}$$
(3)

x^*

$e^* =$
$x^* -$
x

x

$$\mathrm{d}x = x^* - x$$
(4)

x^*

$$e_r^* = \frac{x^* - x}{x} = \frac{\mathrm{d}x}{x} = \mathrm{d}\ln x$$
(5)

$u =$
xy
$\ln u =$
$\ln x +$
$\ln y$ ：

$\mathrm{d}\ln u = \mathrm{d}\ln x + \mathrm{d}\ln y$