$$A_1 = \frac{h}{2}(f_0 + f_1)$$

$$\ldots$$

$$P_2 = \frac{(x-x_1)(x-x_2)}{(x_0-x_1)(x_0-x_2)} f_0 + \frac{(x-x_0)(x-x_2)}{(x_1-x_0)(x_1-x_2)} f_1 + \frac{(x-x_0)(x-x_1)}{(x_2-x_0)(x_2-x_1)} f_2.$$

$s = \frac{x-x_1}{h}$

$$P_2 = \frac{1}{2}s(s-1)f_0 - (s+1)(s-1)f_1 + \frac{1}{2}(s+1)sf_2.$$

$$A_1 = \frac{h}{3}(f_0 + 4f_1 + f_2).$$

$$\int_a^b f(x)dx = \frac{h}{3}[f_0 + 4f_1 + 2f_2 + 4f_3 + \ldots + 2f_{n-2} + 4f_{n-1} + f_n].$$

$s = \frac{x-x_0}{h} x = s$

$$\int_0^1 f(x)dx = af(0) + bf(1).$$

$f(x)$

$$f(x) = f(0) + xf'(0) + \frac{x^2}{2}f''(0) + \ldots.$$

$f(1) a, b a = b = \frac{1}{2}$

$$\int_{-1}^1 f(x)dx = af(-1) + bf(0) + cf(1).$$

$\mathcal{O}(h^5)$

$$\int_0^1 e^{(-x^2)}dx.$$