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$$y'(t) = f(t, y(t))$$

$$\int_{t_n}^{t_{n+1}} y'(t)\,dt = \int_{t_n}^{t_{n+1}} f(t, y(t))\,dt$$

$$y(t_{n+1}) - y(t_n) = \int_{t_n}^{t_{n+1}} f(t, y(t))\,dt$$

$$f(t, y(t)) = P_2(t) + E_2(t)$$

$$P_2(t) = l_0(t) \cdot f(t_{n-1}, y_{n-1}) + l_1(t) \cdot f(t_n, y_n) + \cdots$$

$$\cdots + l_2(t)\, f(t_{n+1}, y_{n+1})$$

$$E_2(t) = \frac{\partial^3 f}{\partial \xi^2}(\xi, y(\xi)) \cdot (t - t_{n-1}) \cdot (t - t_n) \cdot (t - t_{n+1})$$

$$l_0(t) = \frac{t - t_n}{t_{n+1} - t_n}, \quad l_1(t) = \frac{t - t_{n-1}}{t_n - t_{n-1}},$$