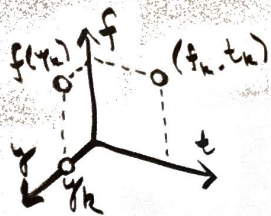$$L_{n,j}(x) = \prod_{i=0, j \neq i}^{n} \frac{x - x_i}{x_j - x_i}$$

$L_{0,1}$ IS NOT DEFINED

$$L_{1,0} = \frac{x - x_1}{x_0 - x_1}$$

$$L_{1,1} = \frac{x - x_0}{x_1 - x_0}$$

$$L_{2,1} = \frac{x - x_0}{x_1 - x_0} \cdot \frac{x - x_2}{x_1 - x_2}$$

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

$$P_n(x) = \sum_{i=0}^{n} L_{n,i}(x) f_i(x)$$

$$P_2(x) = \sum_{i=0}^{2} L_{2,i}(x) f_i(x)$$

$$= L_{2,0}(x) f_0(x) + L_{2,1} f_1(x) + L_{2,2} f_2(x)$$

$$= L_{2,0}(x) f(y_0) + L_{2,1}(x) f(y_1) + L_{2,2}(x) f(y_2)$$

$$= L_{2,0}(t) f(t_{n-1}, y_{n-1}) + L_{2,1}(t) f(t_n, y_n) + \cdots$$

$$\cdots + L_{2,2}(t) f(t_{n+1}, y_{n+1})$$

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