

$$\frac{3}{a} \quad l_2 = \prod_{i=1}^3 \frac{x-x_i}{x_2-x_i} = \frac{x-x_0}{x_2-x_0} \frac{x-x_1}{x_2-x_1} \frac{x-x_3}{x_2-x_3}$$

$$= \frac{x-0}{2-0} \frac{x-1}{2-1} \frac{x-4}{2-4}$$

$$l_2 = -\frac{1}{4} x (x-1)(x-4)$$

$$l_3 = \prod_{i=1}^3 \frac{x-x_i}{x_3-x_i} = \frac{x-x_0}{x_3-x_0} \frac{x-x_1}{x_3-x_1} \frac{x-x_2}{x_3-x_2}$$

$$= \frac{x-0}{4-0} \frac{x-1}{4-1} \frac{x-2}{4-2}$$

$$= \frac{1}{14} x (x-1)(x-2)$$

$$\rightarrow P_n(x) = -\frac{1}{2} e^0 (x-1)(x-2)(x-4) + \dots$$

$$\dots + \frac{1}{3} e^1 x (x-2)(x-4) + \dots$$

$$\dots - \frac{1}{4} e^2 x (x-1)(x-4) + \dots$$

$$\dots - \frac{1}{14} e^4 x (x-1)(x-2)$$