

$$l_1(x) = \frac{1}{2}(x^2 + 3x + 2)$$

$$l_2(x_0) = \frac{1}{2}((-2)^2 + 3(-2) + 2) = \frac{1}{2}(4 - 6 + 2) = 0 \neq P(x_0)$$

$$\rightarrow 3 \leq n \leq 5$$

$$n=3$$

$$l_0(x) = \frac{x-x_1}{x_0-x_1} \cdot \frac{x-x_2}{x_0-x_2} \cdot \frac{x-x_3}{x_0-x_3} = \frac{x+1}{-2+1} \cdot \frac{x-0}{-2-0} \cdot \frac{x-1}{-2-1} = -\frac{1}{6}x(x+1)(x-1)$$

$$= -\frac{1}{6}(x^3 + x)$$

$$l_0(x_0) = -\frac{1}{6}((-1)^3 - 1) = \frac{10}{6} \neq P(x_0)$$

$$l_1(x) = \frac{x-x_0}{x_1-x_0} \cdot \frac{x-x_2}{x_1-x_2} \cdot \frac{x-x_3}{x_1-x_3} = \frac{x+2}{-1+2} \cdot \frac{x-0}{-1-0} \cdot \frac{x-1}{-1-1} = \frac{1}{2}x(x+2)(x-1)$$

$$= \frac{1}{2}(x^3 + x^2 - 2x)$$

$$l_1(x_0) = \frac{1}{2}((-2)^3 + (-2)^2 - 2(-2)) = 0 \neq P(x_0)$$