4

$$l_k(x) = \prod_{\substack{i=0 \\ i \neq k}}^{5} \frac{x - x_i}{x_k - x_i}$$

$$x = \{x_0, x_1, x_2, x_3, x_4, x_5\}$$

w/ $x_0 = -x_4$

$x_1 = -x_3$

$$\rightarrow x = \{-x_4, -x_3, x_2, x_3, x_4, x_5\}$$

$$l_k(x) = \frac{x - x_0}{x_1 - x_0} \cdot \frac{x - x_1}{x_0 - x_1} \cdot \frac{x - x_2}{x_1 - x_2} \cdot \frac{x - x_3}{x_2 - x_3} \cdot \frac{x - x_4}{x_3 - x_4} \cdot \frac{x - x_5}{x_4 - x_5}$$

$$= \frac{x + x_4}{x_1 - x_0} \cdot \frac{x + x_3}{x_0 - x_1} \cdot \frac{x - x_2}{x_1 - x_2} \cdot \frac{x - x_3}{x_2 - x_3} \cdot \frac{x - x_4}{x_3 - x_4} \cdot \frac{x - x_5}{x_4 - x_5}$$

$$l_k(x) = \prod_{\substack{i=0 \\ i \neq k}}^{1} \frac{x - x_i}{x_k - x_i} = \frac{x - x_0}{x_1 - x_0} \cdot \frac{x - x_1}{x_0 - x_1}$$

$$x = \{x_0, x_1, \ldots, x_5\}$$

& $x_3 = -x_1$

$x_4 = -x_0$

$$\rightarrow \frac{x - x_0}{x_1 - x_0} = \left\{ \frac{x_0 - x_0}{x_1 - x_0}, \frac{x_1 - x_0}{x_1 - x_0}, \ldots, \frac{x_5 - x_0}{x_1 - x_0} \right\}$$

$$\frac{x - x_1}{x_0 - x_1} = \left\{ \frac{x_0 - x_1}{x_0 - x_1}, \frac{x_1 - x_1}{x_0 - x_1}, \ldots, \frac{x_5 - x_1}{x_0 - x_1} \right\}$$