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$$\sum_{k=0}^1 l_k = l_0 + l_1$$

$$= \frac{X - X_1}{X_0 - X_1} + \frac{X - X_0}{X_1 - X_0} \quad \square$$

$$\text{Set } X_0 = a, X_1 = b$$

$$= \frac{X - b}{a - b} + \frac{X - a}{b - a} = \dots$$

$$\dots = \frac{b - a}{b - a} + \frac{a - b}{a - b} \frac{X - a}{b - a}$$

$$= \frac{(b - a)(X - b) + (a - b)(X - a)}{(b - a)(a - b)}$$

$$= \frac{bx - b^2 - ax + ab + ax - a^2 - bx + ba}{ba - b^2 - a^2 + ab}$$

$$= \frac{-b^2 - a^2 + 2ab}{-b^2 - a^2 + 2ab}$$

THIS SHOULD BE  
TRUE FOR  $n > 1$   
AS WELL