

$$\begin{aligned} \sum_{k=0}^{k=N} B_k \cdot 2^k &= B_0 + \sum_{k=1}^{k=N} B_k \cdot 2^k = B_0 + 2 \cdot \sum_{k=1}^{k=N} B_k \cdot 2^{k-1} = \\ &= B_0 + 2 \cdot \left[B_1 + \sum_{k=2}^{k=N} B_k \cdot 2^{k-1} \right] = B_0 + 2 \cdot \left[B_1 + 2 \cdot \sum_{k=2}^{k=N} B_k \cdot 2^{k-2} \right] \end{aligned}$$