

$$n := 2$$

$$m := 0, 1 \dots (2n) - 1$$

$$F(m) := \left[ \sum_{n=0}^{n-1} \left[ \alpha_n (\beta_n)^m \right] \right]$$

$$F(m) \rightarrow \begin{bmatrix} \alpha_0 + \alpha_1 \\ \alpha_0 \cdot \beta_0 + \alpha_1 \cdot \beta_1 \\ \alpha_0 \cdot (\beta_0)^2 + \alpha_1 \cdot (\beta_1)^2 \\ \alpha_0 \cdot (\beta_0)^3 + \alpha_1 \cdot (\beta_1)^3 \end{bmatrix}$$

$$S(m) := \left( \int_{-1}^1 x^m dx \right)$$

$$S(m) \rightarrow \begin{pmatrix} 2 \\ 0 \\ \frac{2}{3} \\ 0 \end{pmatrix}$$

$$\alpha_0 := 1 \quad \beta_0 := 1 \quad \alpha_1 := 1 \quad \beta_1 := 1$$

Given

$$S(m) = F(m)$$

$$\begin{pmatrix} a1 \\ a2 \\ b1 \\ b2 \end{pmatrix} := \text{Find}(\alpha_0, \alpha_1, \beta_0, \beta_1)$$

$$a1 = \blacksquare$$

$$a2 = \blacksquare$$

$$b1 = \blacksquare$$

$$b2 = \blacksquare$$