Z 7

$$S = h_0 + a_1 \sin\frac{2\pi t}{12} + a_2 \cos\frac{2\pi t}{12} = a_0 g_0 + a_1 g_1 + a_2 g_2$$

$$E(a_0, a_1) = \sum_{k=0}^{7} \left(y_k - a_0 g_0 - a_1 g_1 - a_2 g_2 \right)^2$$

$$E'(a_i) = 2\sum_{k=0}^{7} \left(y_k - a_0 g_0 - a_1 g_1 - a_2 g_2 \right) g_i = 0$$

$$\sum_{k=0}^{7} \left(y_k - a_0 g_0 - a_1 g_1 - a_2 g_2 \right) g_i =$$

$$\sum_{k=0}^{7} y_k g_i - a_0 \sum_{k=0}^{7} g_0 g_i - a_1 \sum_{k=0}^{7} g_1 g_i - a_2 \sum_{k=0}^{7} g_2 g_i =$$

$$\langle y_k, g_i \rangle - a_0 \langle g_0, g_i \rangle - a_1 \langle g_1, g_i \rangle - a_2 \langle g_2, g_i \rangle = 0$$

$$\langle y_k, g_i \rangle = a_0 \langle g_0, g_i \rangle + a_1 \langle g_1, i \rangle + a_2 \langle g_2, g_i \rangle$$

$$\begin{bmatrix} \langle g_0, g_0 \rangle & \langle g_0, g_1 \rangle & \langle g_0, g_2 \rangle \\ \langle g_1, g_0 \rangle & \langle g_1, g_1 \rangle & \langle g_1, g_2 \rangle \\ \langle g_2, g_0 \rangle & \langle g_2, g_1 \rangle & \langle g_2, g_2 \rangle \end{bmatrix} \begin{bmatrix} a_0 \\ a_1 \\ a_2 \end{bmatrix} = \begin{bmatrix} \langle y, g_0 \rangle \\ \langle y, g_1 \rangle \\ \langle y, g_2 \rangle \end{bmatrix}$$

Wychodzi $a_0 = h_0 \approx 0.93$ $a_1 \approx 0.57$ $a_2 \approx 0.26$