$$-u'' - u = \sin x \quad / \cdot v, \int_0^2 (\cdot)\,dx \qquad u(0) = 0$$

$$u'(2) - u(2) = 0$$

$$\int_0^2 u''v\,dx - \int_0^2 uv\,dx = -\int_0^2 v\sin x\,dx \qquad u'(2) = u(2)$$

$$u'v\Big|_0^2 - \int_0^2 u'v'\,dx + \int_0^2 uv\,dx = -\int_0^2 v\sin x\,dx$$

$$u'(2)v(2) - u'(0)v(0) - \int_0^2 u'v'\,dx + \int_0^2 uv\,dx = -\int_0^2 v\sin x\,dx$$

$u'(2) = u(2)$; $u'(0) = 0$ (Grog)

$$\underbrace{u(2)v(2) + \int_0^2 (-u'v' + uv)\,dx}_{B(u,v)} = \underbrace{-\int_0^2 v\sin x}_{L(v)}$$

$$\begin{bmatrix} B(u_1,v_1) & \cdots & B(u_1,v_m) \\ \vdots & \ddots & \vdots \\ B(u_m,v_1) & \cdots & B(u_m,v_m) \end{bmatrix} \begin{bmatrix} c_1 \\ \vdots \\ c_m \end{bmatrix} = \begin{bmatrix} L_1 \\ \vdots \\ L_m \end{bmatrix}$$