Matrix Equation:

$$\underline{\underline{A}}\,\underline{u} = \underline{F}$$

$\underline{\underline{A}} \in \mathbb{R}^{m \times m}$, $\underline{u} \in \mathbb{R}^m$, $\underline{F} \in \mathbb{R}^m$

$$\frac{1}{h^2}\begin{bmatrix} 2 & -1 & & & \\ -1 & 2 & -1 & & \\ & \ddots & \ddots & \ddots & \\ & & & -1 & \\ & & -1 & 2 & \end{bmatrix}\begin{bmatrix} u_1 \\ \vdots \\ \vdots \\ \vdots \\ u_m \end{bmatrix} = \begin{bmatrix} f(x_1) + \alpha/h^2 \\ f(x_2) \\ \vdots \\ f(x_{m-1}) \\ f(x_m) + \beta/h^2 \end{bmatrix}$$