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18.085 Computational Science and Engineering I
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18.085 MATLAB 2.2

This is about $Mu'' + Ku = 0$ with $M = \begin{bmatrix} 1 & 0 \\ 0 & 4 \end{bmatrix}$ and $K = \begin{bmatrix} 4 & -4 \\ -4 & 16 \end{bmatrix}$.

1. Find the eigenvalues λ_1, λ_2 and eigenvectors x_1, x_2 of $M^{-1}K$ by `eig(K,M)` and check that $x_1^T M x_2 = 0$. They solve $Kx = \lambda Mx$.
2. Use the `normalmodescode` to solve $Mu'' + Ku = 0$ starting from $u = (1, 0)$ and $u' = (0, 0)$. Find the solution vector u at $t = 1$ and $t = 2$.