2.3   Higher order coupled linear ODEs

Problem 2.19:   Repeat the calculations of the normal modes of three and four block systems when the masses are not the same. Specifically, assume the ith block has mass $m_i = i$.

Problem 2.20:   Repeat the calculations of the normal modes of three and four block systems when the masses are the same but the spring constants for each spring are different. Specifically, assume the spring connecting the ith block to the $(i+1)$th block has spring constant $K_i = 1/i$ for $i = 1, \ldots, n-1$ and that the spings connecting the first and last blocks to the rigid walls have spring constant $K = 1$.