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# HW-3: Spring System

Consider the spring system shown in Figure 1. The left side of the system is fixed to a rigid wall and the right side is displaced to the right. Springs are connected to nodes 1, 2, 3, 4 and 5, the displacements of which are restricted to the horizontal direction. Units for spring constants, $k$, forces, $F$, and displacements, $U$, are [N/mm], [N] and [mm], respectively.

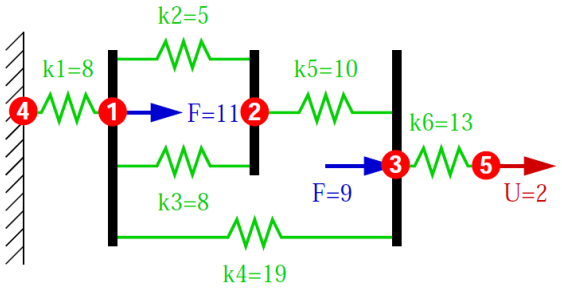


Figure 1: Spring system

Use the element method, establish the element stiffness matrices and, using them, set up the global stiffness matrix. Apply the boundary conditions at nodes 4 and 5 as well as the forces at nodes 1 and 3. Solve the resulting set of linear equations either by hand or by some appropriate software to find:

1. The unknown nodal displacements
2. The unknown nodal forces