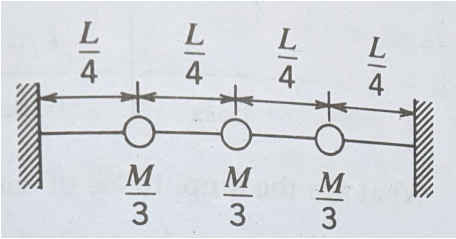
1. A string of length L and total mass M is stretched to a tension T. What are the frequencies of three lowest normal modes of oscillation of the string for transverse oscillations? Compare these frequencies with the three normal mode frequencies of three masses each of mass $M/3$ spaced at equal intervals on a massless string of tension T and total length L.



2. A stretched string of mass m, length L, and tension T is driven by two sources, one at each end. The sources both have the same angular frequency ω and amplitude A, but are exactly 180° out of phase with respect to one another. What is the smallest possible value of ω consistent with stationary vibrations of the string?