Problems:


2. (From Dec ’03 Final:) Three beads of mass $m$, $2m$ and $m$, respectively, are threaded onto three parallel rods, a distance $d$ apart from each other as shown. The beads are connected with springs characterized by a spring constant $k$. (Assume that the length of unstretched springs is zero.) The beads can move along the rods without friction.

3. A mass $m$ is suspended from a support by a spring with spring constant $m \omega_1^2$. A second mass $m$ is suspended from the first by a spring with spring constant $m \omega_2^2$. A vertical harmonic force $F_0 \cos \omega t$ is applied to the upper mass. Find the steady-state motion for each mass. Examine what happens when $\omega = \omega_2$.

4. Goldstein, Problem 8-1.

Find the normal modes of oscillation of the bead system (frequencies and amplitude vectors - no particular normalization required). Discuss those modes.