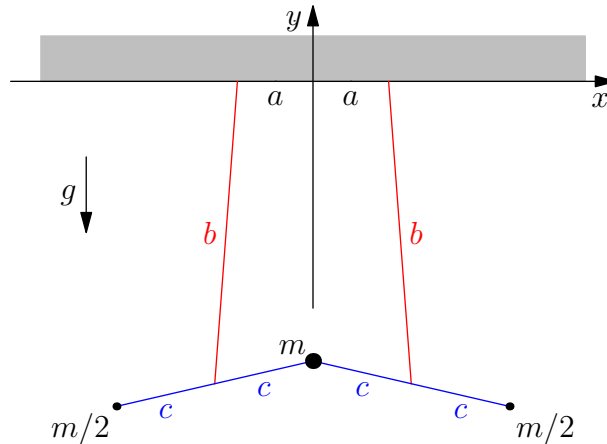


J02M.1—Flapping Toy

Problem

Deduce the frequency of small oscillations of the flapping toy shown in the figure below, supposing the central mass m moves only vertically, and the motion of the other masses is only in the x - y plane.



The flapping toy consists of the central mass m connected by two massless rods of length $2c$ to two masses $m/2$. The centers of the two rods are suspended from a horizontal plane by massless strings of length b , with distance $2a$ between the upper points of suspension. Length c is slightly larger than a .