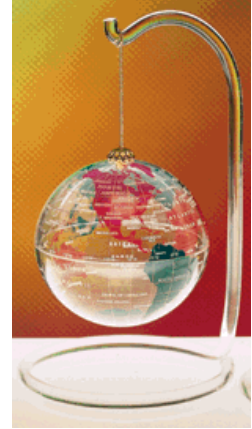
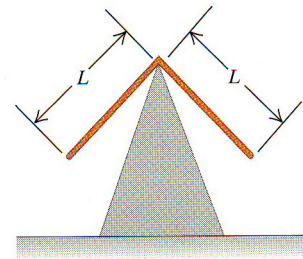


1. An ornament hangs from a thin string as shown at the right. It is a hollow sphere with a radius of 3.50cm and has a mass of 82.0g. It oscillates back and forth once every 3.20s. Find the torsion constant of the string.



2. A pendulum consists of a 1.20kg stick 1.00m long with a small weight placed at the end. (a)Find the period of the pendulum without the weight attached. With the weight attached, the period is 1.70s. (b)Find the mass of the small weight.



3. The 90° angle iron shown at the right oscillates at the tip of a fulcrum. Find the expression for the period of small oscillation in terms of L .

4. The device shown at the right is a cylinder of mass, M , and radius, R , that has a spring of spring constant, k , attached vertically at the edge. If you move your hand across the top of the cylinder to displace it from equilibrium, it will oscillate. (a)Show that for small displacements, the motion is SHM and (b)find the period in terms of M , R , and k .

