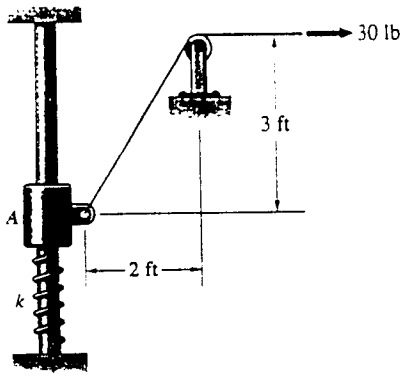
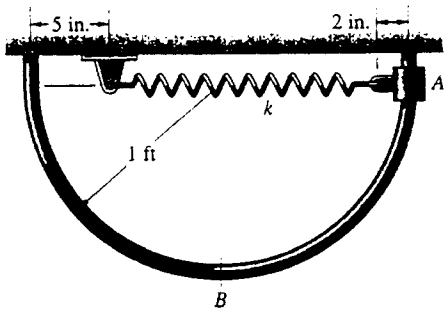
Handout 6 ME 230

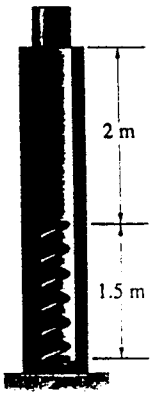
1/ The system is at rest in the position shown, with the 12-lb collar A resting on the spring (k = 20 lb/ft), when a constant 30-lb force is applied to the cable. What is the velocity of the collar when it has risen 1 ft?



2/ The 5-lb collar starts from rest at A and slides along the semicircular bar. The spring constant is k = 100 lb/ft, and the unstretched length of the spring is 1 ft. Use conservation of energy to determine the velocity of the collar at B.



3/ The 20-kg cylinder is released at the position shown and falls onto the linear spring (k = 3000 N/m). Use conservation of energy to determine how far down the cylinder moves after contacting the spring.



4. A flexible rope of length l and weight W rests on a horizontal table in a straight line with a portion of length l_0 hanging vertically over the edge. Neglect friction. Find the time required for the rope to slide off the table.