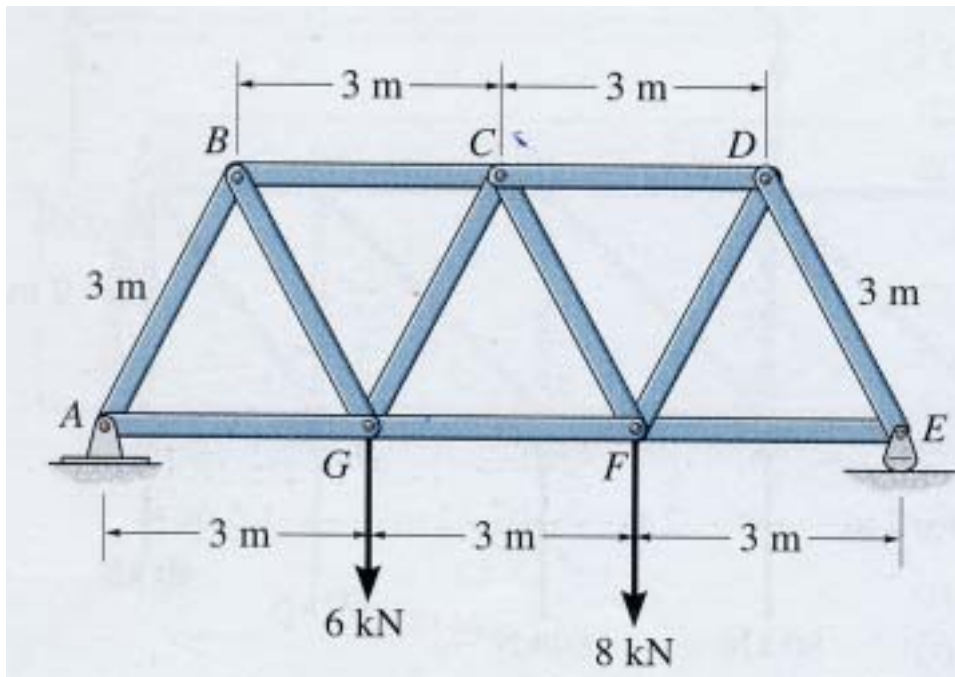
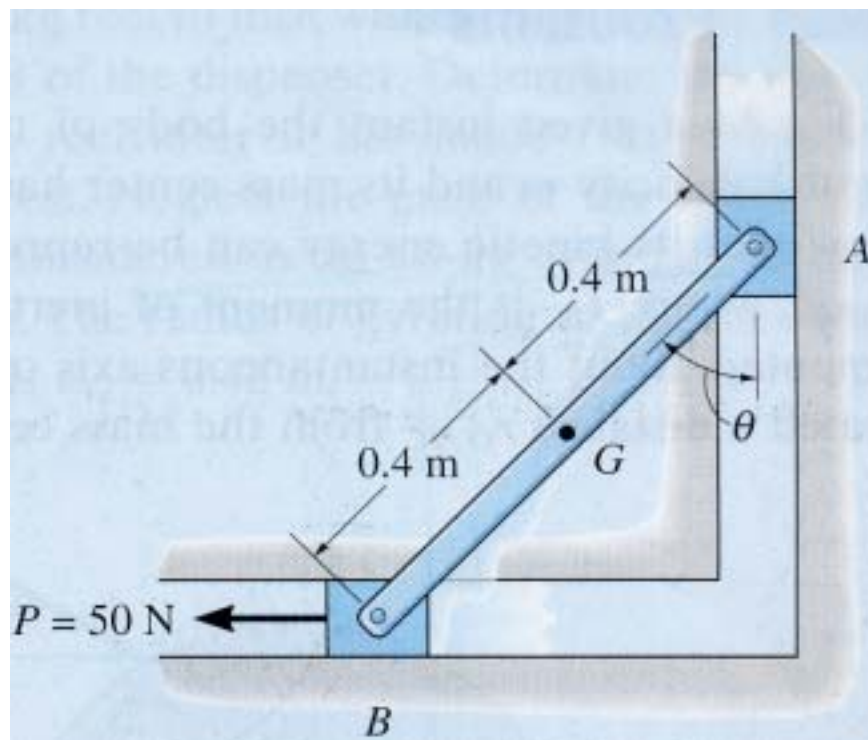


- Determine the force in members CD, CF, and FG of the Warren truss. Indicate if the members are in tension or compression. (25%)



- The 10-kg rod is constrained so that its ends move along the grooved slots. The rod is initially at rest when  $\theta = 0^\circ$ . If the slider block at B is acted upon by a horizontal force  $P=50\text{N}$ , determine the angular velocity of the rod at the instant  $\theta = 45^\circ$ . Neglect friction and the mass of block A and B. (25%)



3. Identify all zero-force members in the truss as shown in Fig. 3.

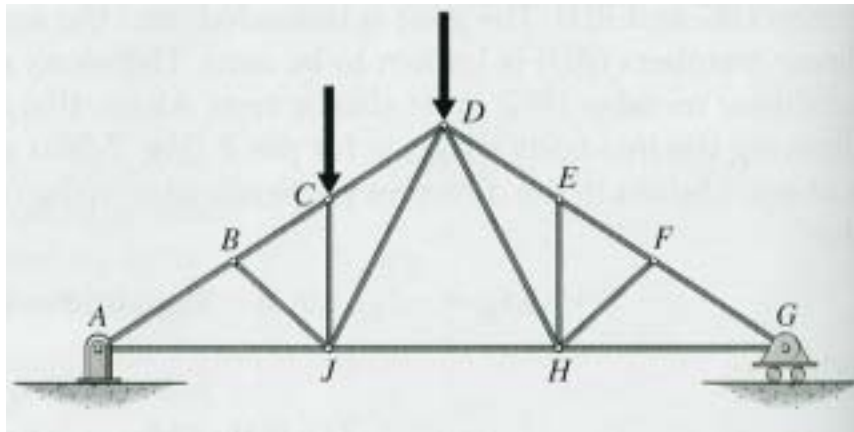


Fig. 3

4. A 30-lb, 12-in.-diameter, uniform cylinder C rolls without slipping on a horizontal surface shown in Fig. 4. A cord wrapped around the cylinder passes over a small frictionless pulley and is attached to a 30-lb crate A. If the system is released from rest, determine the speed  $v_c$  of the cylinder and the speed  $v_A$  of the crate after the crate has dropped 5 ft.

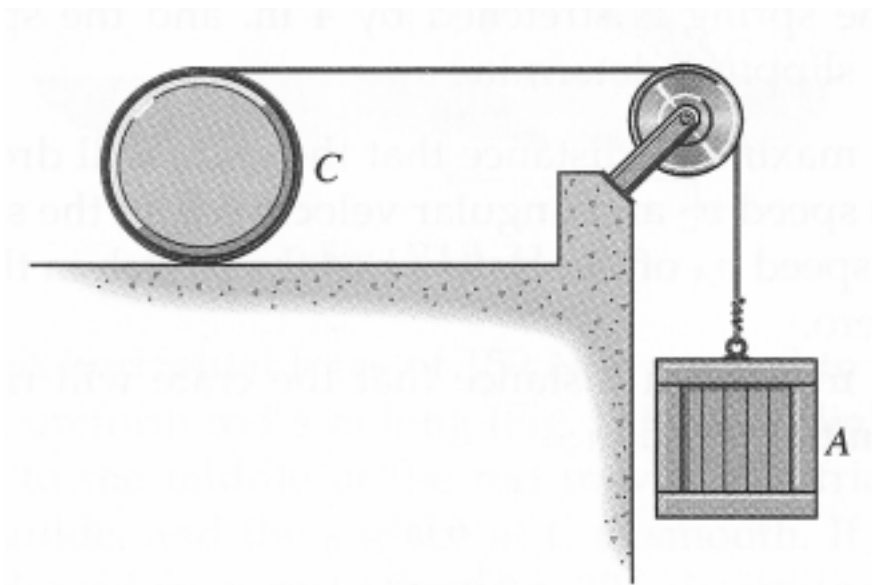


Fig. 4