1. Three smooth (frictionless) cylinders A, B, and C are stacked in a box as shown. Each cylinder has a diameter of 250 mm and a mass of 245 kg. Determine:
   a) The force exerted by cylinder B on cylinder A (include direction).
   b) The forces exerted on cylinder B by the vertical and horizontal surfaces at D and E (include direction).

Free-Body Diagrams required.
2. Two 1.2-lb thrusters on the nonrotating satellite are simultaneously fired as shown.
   a) Compute the moment associated with this couple.
   b) State about which satellite axes rotations will begin to occur.

Suppose now, the plan is to fire four 1.2-lb thrusters as shown in order to spin the spacecraft about its z-axis, but the thruster at A fails. Determine the equivalent force-couple system at G for the remain three thrusters.
3. Replace the loading on the frame by a single resultant force. Specify where the resultant's line of action intersects member CD, measured from end C.
4. The 60-lb package is held in equilibrium by cables AB, AC, and AD. Determine the tension in each of these cables. (Free-Body Diagram required)
5. Determine the tension $T$ in the turnbuckle for the pulley-cable system in terms of the mass $m$ of the body which it supports. Neglect the mass of the pulleys and cable. (Free-Body Diagrams required)