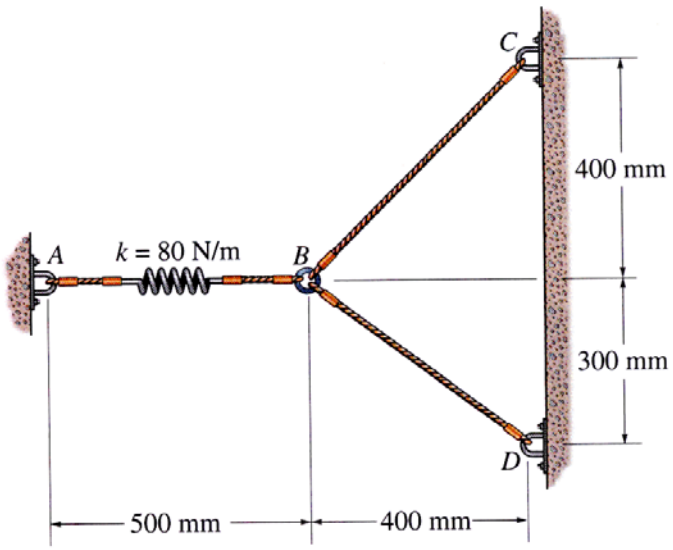
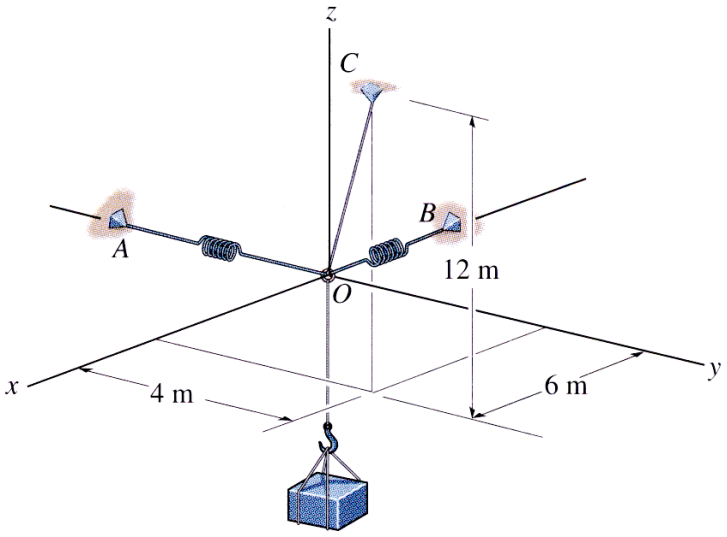
BE 50A - Fall 2001 - Test 1 **Name:** _____

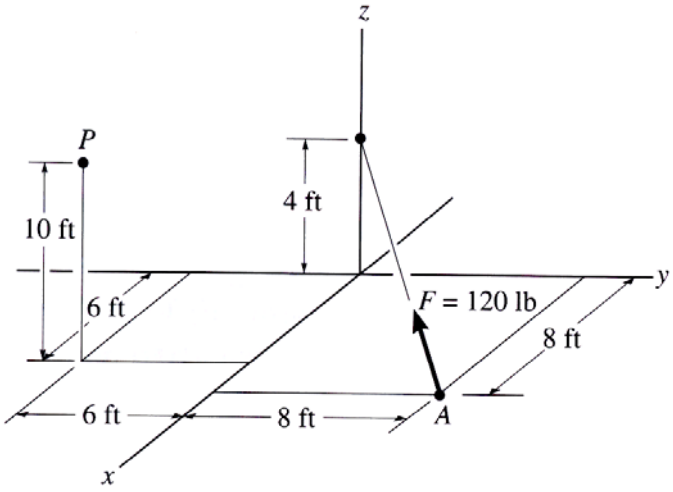
1. The spring has a stiffness of $k = 80$ N / m and an unstretched length of 200 mm. Determine the magnitude of the force in cables *BC* and *BD* when the spring is held in the position shown.



2. Determine the force in each of the springs *OA* and *OB* and cord *OC* required to hold the 20-kg crate in the equilibrium position shown.



3. Replace the force at A by an equivalent resultant force and couple moment at point P. Express the results in Cartesian vector form.



4. Replace the loading by an equivalent resultant force and specify its location on the beam, measured from point *A*.