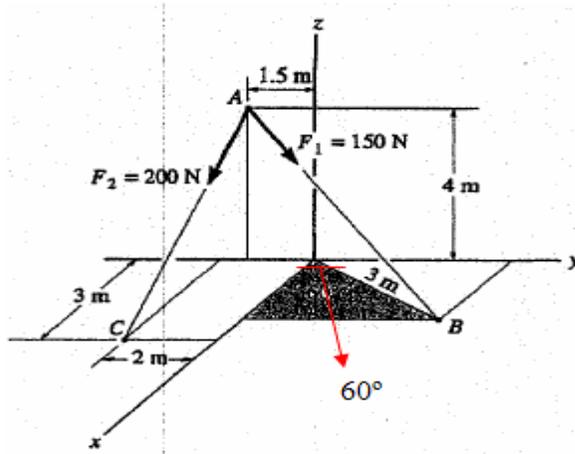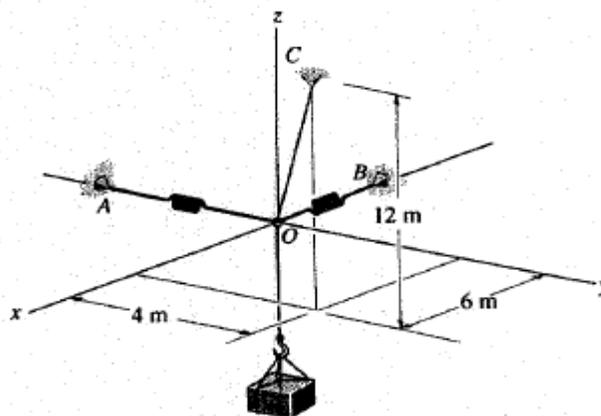**APPENDIX F: Test Questions for Statics**

Test 1

Q1. Determine the magnitude and the coordinate directional angles of the resultant force acting at point A.

Q2. Determine the stretch in each of the two springs required to hold the 20kg crate in the equilibrium position shown. Each spring has an unstretched length of 2m and a stiffness of k = 300 N/m.

Q3. The pole for a power line is subjected to the two cable forces of 6 kN, each force lying in a plane parallel to the x-y plane. If the tension in the guy wire AB is 8 kN, determine the x, y, z, components of reaction at the fixed base of the pole, O due to these three forces.
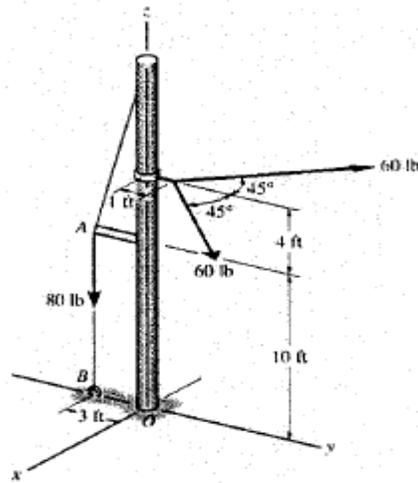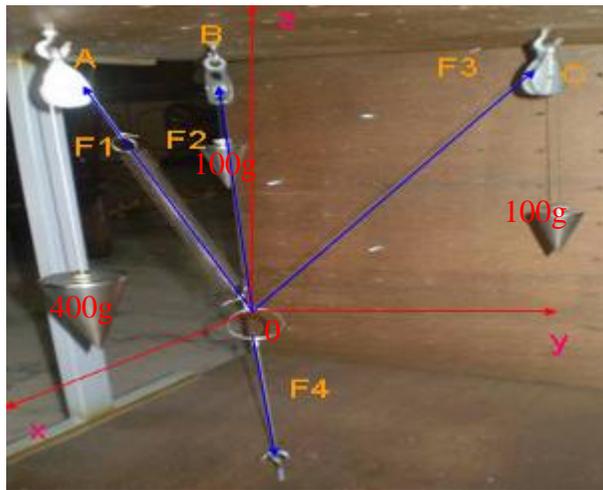

Test 2

Q1. If the ropes exert forces F1= 0.981N and F2 = 0.981N on the wood panel hook at *A*. Determine the magnitude of the resultant force acting at *A*.
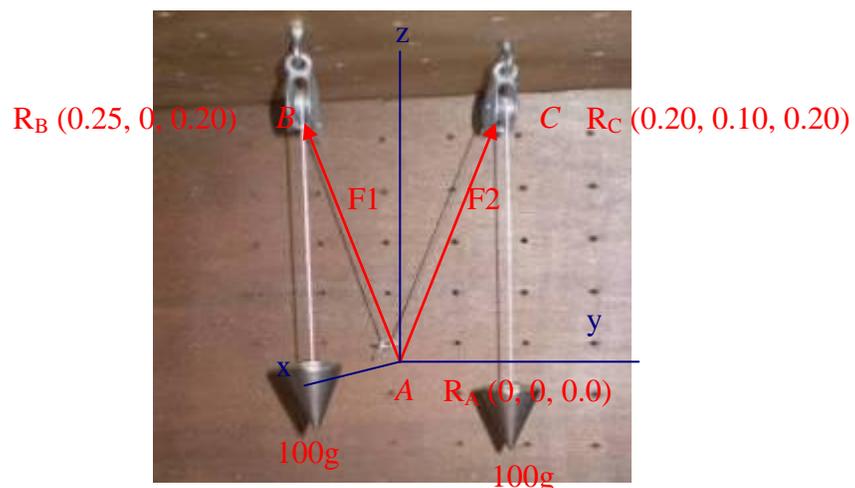

Setting of force vector (3D)

Q2. Determine the stiffness of the spring, magnitude and coordinate direction of Force F that is required for equilibrium of particle O.
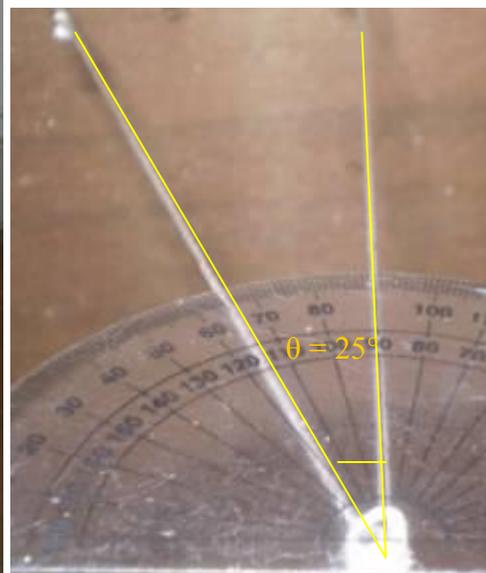

Setting of equilibrium of a particle (3D)

Q3. The ropes exert the forces shown on the screw. Assuming the screw is supported by a **ball and socket joint** at its base, determine the components of reaction at A. the forces of 0.49 N and 0.98 N lie in a horizontal plane.
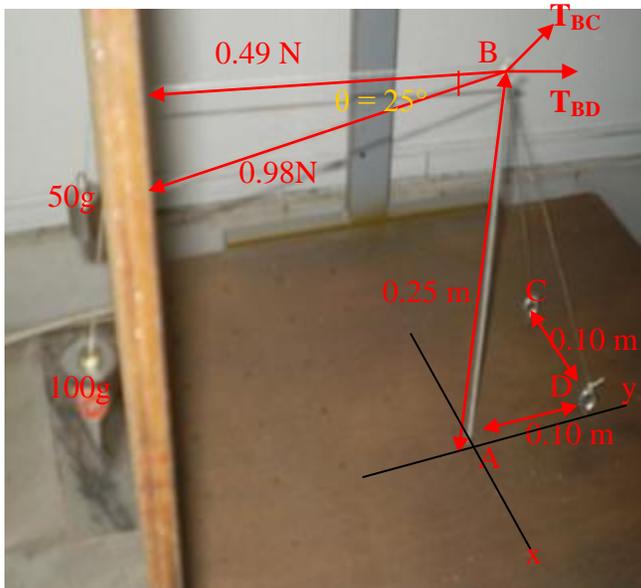
Setting of rigid body   Angle of the rope