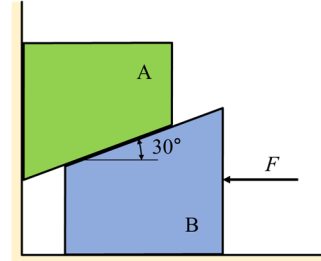


Statics: Mid-Term Exam

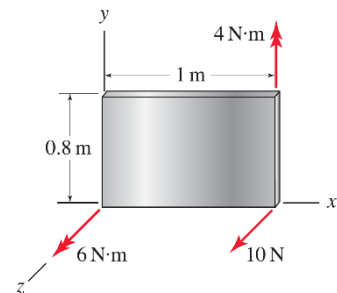
2016. 10. 21. 11:00~13:00, Closed Book

Instructor: Seungtae CHOI

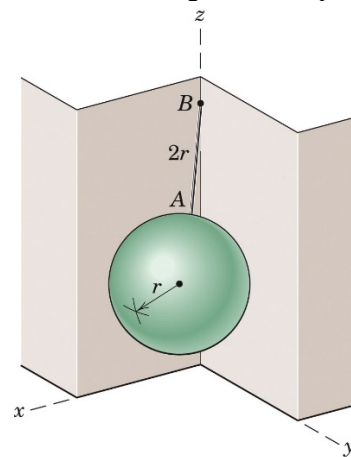
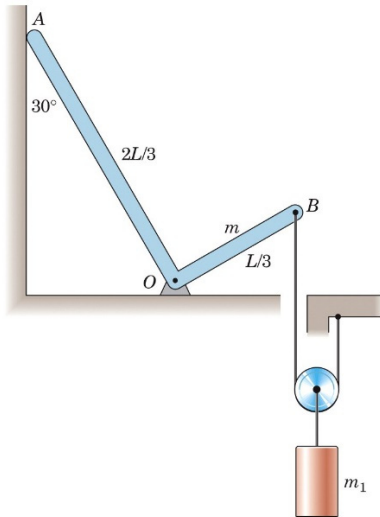
1. Blocks A and B each have mass m , and all contact surfaces are frictionless. (The acceleration of gravity is g .)
 - (a) Determine the force F needed to keep the blocks in static equilibrium and express the forces on all contact surfaces in a vector form.
 - (b) If the value of F determined in (a) is applied, will the blocks move? Explain.



2. Determine a wrench equivalent force system and specify the x and y coordinates of the point where the wrench's line of action intersects the xy plane.



3. Determine the minimum cylinder mass m_1 required to cause loss of contact at A .
4. A smooth homogeneous sphere of mass m and radius r is suspended by a wire AB of length $2r$ from point B on the line of intersection of the two smooth vertical walls at right angles to one another. Determine the reaction R of each wall against the sphere.



5. Bar $ABCDE$ is supported by cable BF , a ball and socket at A , and a self-aligning bearing at E . Determine the tension T in cable BF and the reactions at points A and E .

