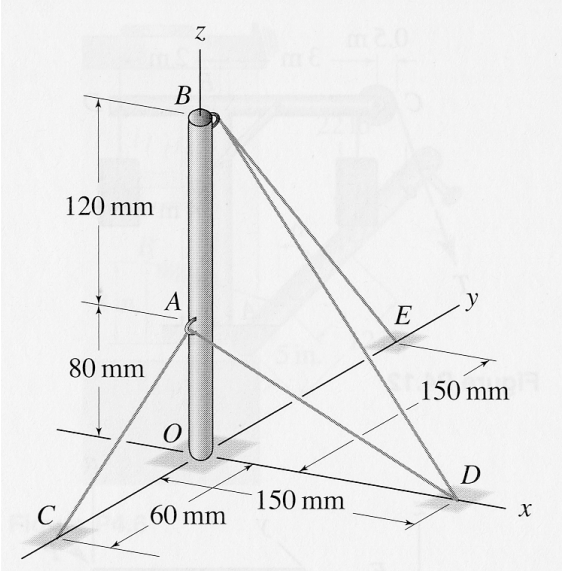
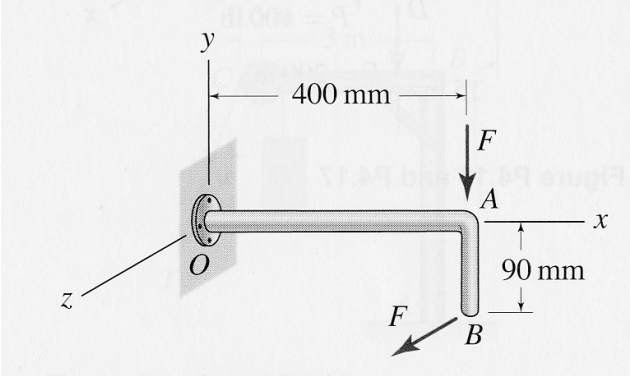
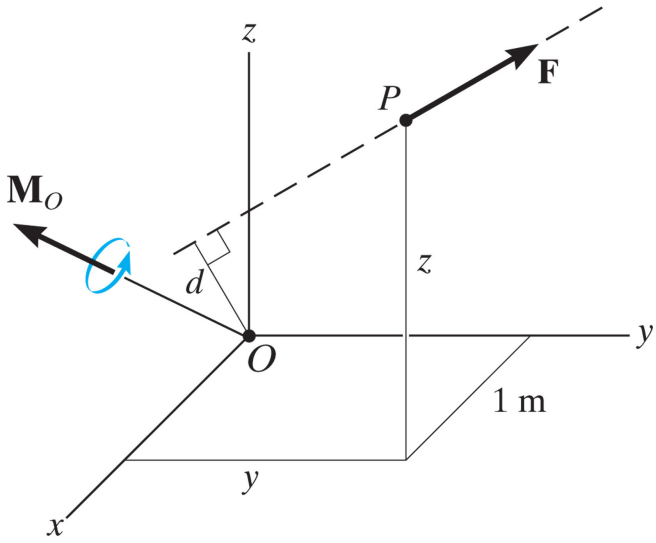
PHY 211 Statics HW 3



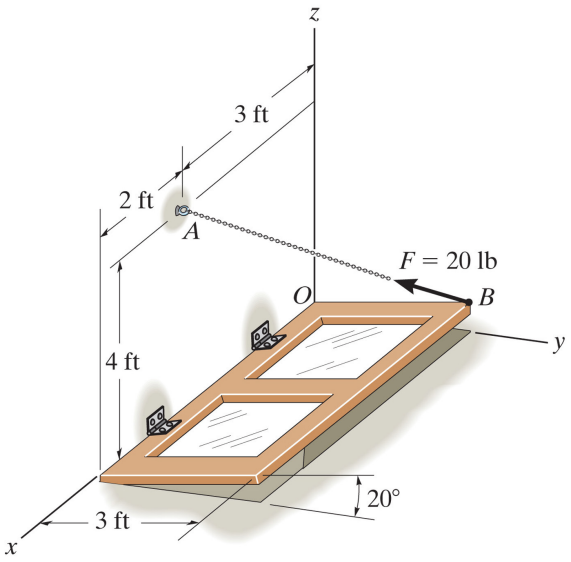
1. If the force in cable *CAD* is 250 N and the force in cable *DBE* is 100 N, determine the total moment about *O*.



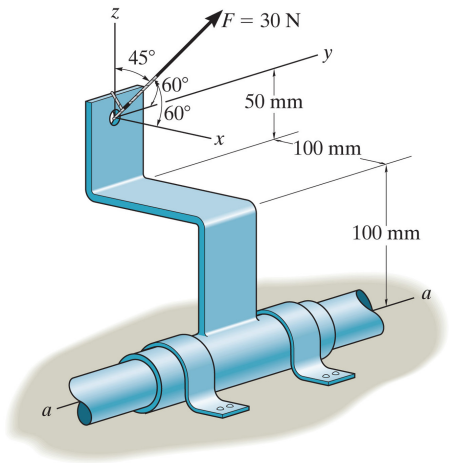
2. The applied force at *A* is parallel to the *y*-axis, and the force at *B* is parallel to the *z*-axis. If the magnitude of the total moment about *O* cannot exceed 1 kN•m, what is the maximum allowed value for *F* ?



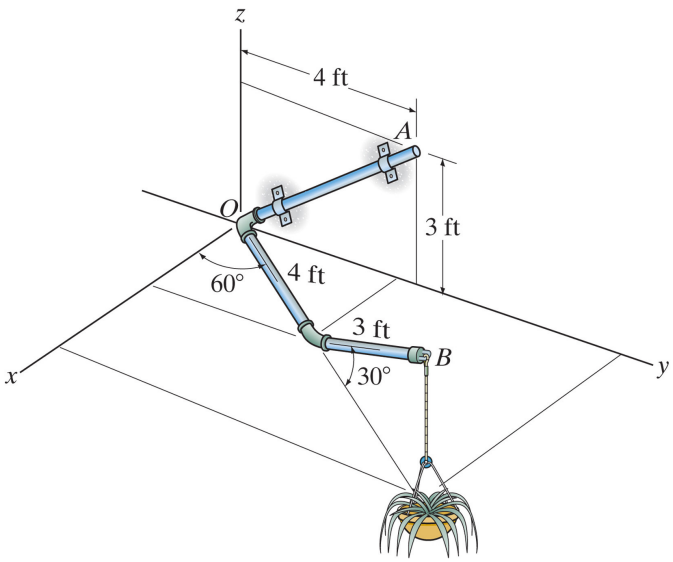
3. The force $\vec{F} = \left[6\hat{i} + 8\hat{j} + 10\hat{k}\right] N$ produces a moment about *O* of $\left[-14\hat{i} + 8\hat{j} + 2\hat{k}\right] N \bullet m$. If the line of the force passes through a point whose *x*-coordinate is 1 m, find the *y* and *z* coordinates of that point and the perpendicular distance *d* between the line of the force and *O*.



4. The force in chain AB is 20 lbs. Find the moment produced by this force about the line of the hinge (the x-axis).



5. Determine the moment of force $\vec{F}$ about the a-a axis. Then find the coordinate direction angles for $\vec{F}$ that would produce the maximum moment about the a-a axis.



6. If the brackets along the pipe OA can withstand a maximum moment of 150 lb•ft without slipping, determine the maximum weight for the flower pot.