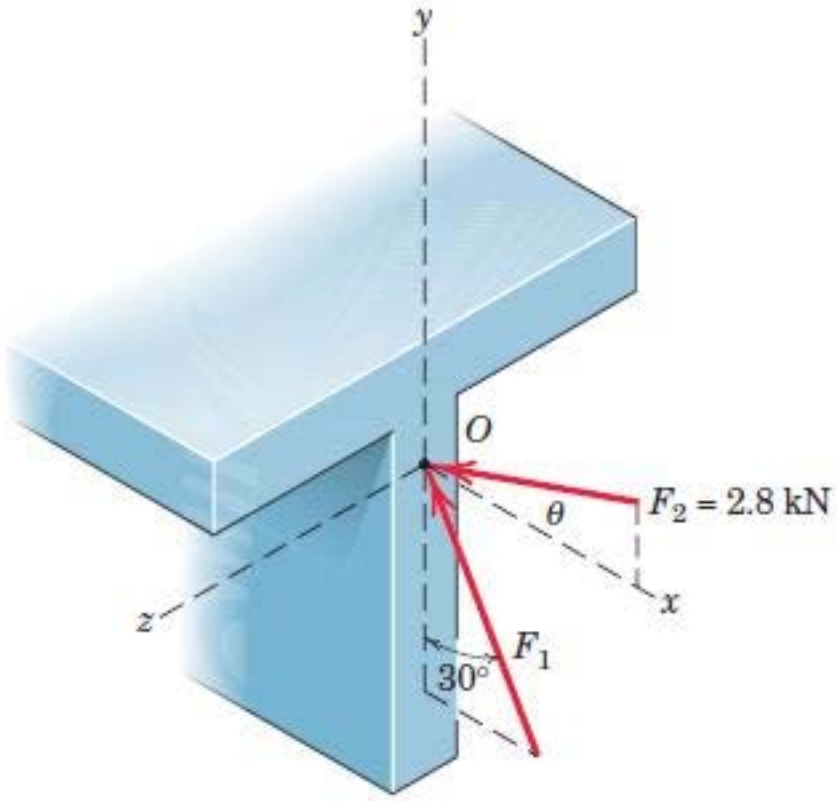
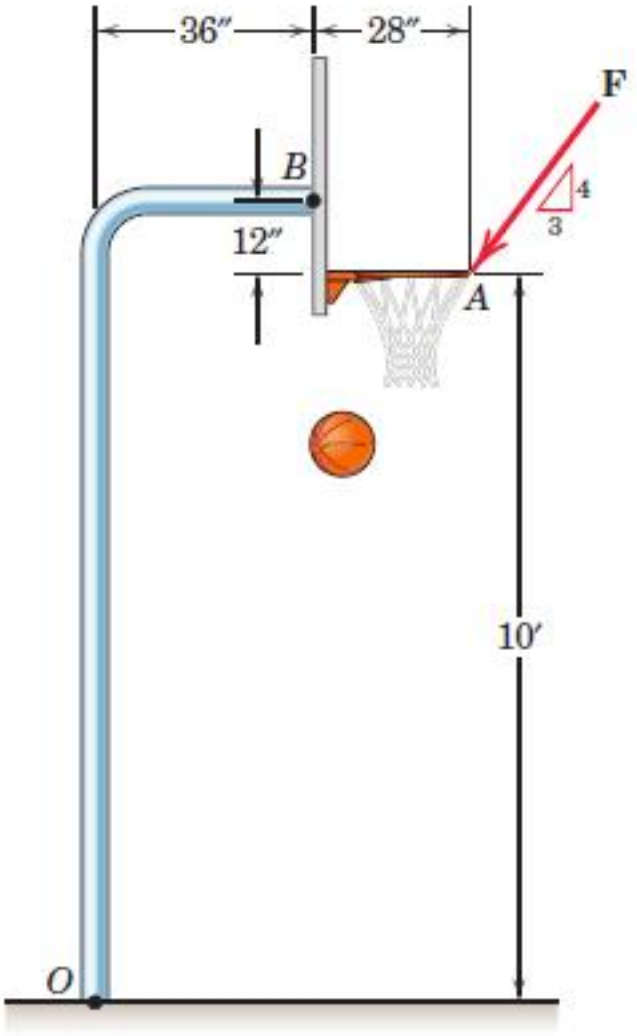
1. Chapter 2, Problem 2/017

The two forces shown act in the *x*-*y* plane of the T-beam cross section. If it is known that the resultant **R** of the two forces has a magnitude of 3.5 kN and a line of action that lies 15° above the negative *x*-axis, determine the magnitude of $\mathbf{F}_1$ and the orientation θ of $\mathbf{F}_2$.



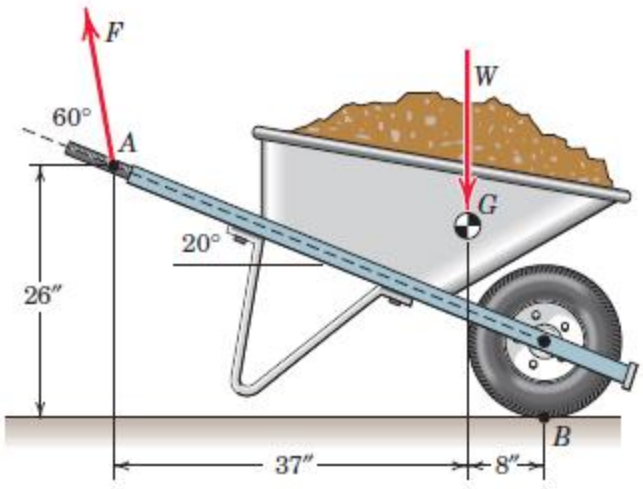
2. Chapter 2, Problem 2/035 (video solution to similar problem attached)

An experimental device imparts a force of magnitude F = 47 lb to the front edge of the rim at A to simulate the effect of a slam dunk. Compute the moment of the force F about point O and about point B. Finally, locate a point C from the base at O to the location on the ground where the force imparts zero moment.



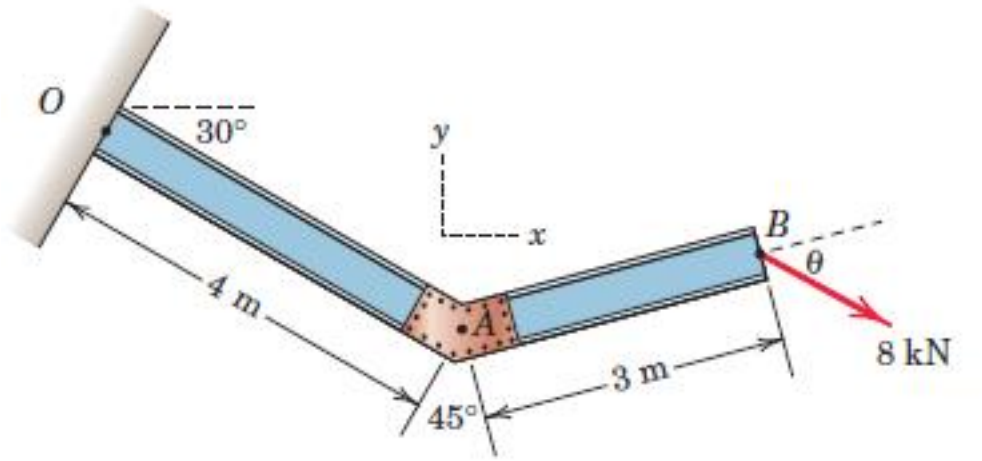
3. Chapter 2, Problem 2/040 (video solution to similar problem attached)

A man exerts a force *F* on the handle of the stationary wheelbarrow at *A*. The weight of the wheelbarrow along with its load of dirt is 185 lb with center of gravity at *G*. For the configuration shown, what force *F* must the man apply at *A* to make the net moment about the tire contact point *B* equal to zero?



4. Chapter 2, Problem 2/055

The bent cantilever beam is acted upon by an 8-kN force at *B*. If the angle $\theta = 35°$, determine (*a*) the moment $\mathbf{M}_O$ of the force about point *O* and (*b*) the moment $\mathbf{M}_A$ of the force about point *A*. What two values of θ ($0 < \theta < 360°$) will result in the maximum magnitude of the moment about point *O*, and what is the magnitude of the moment at those orientations?



5. Chapter 2, Problem 2/043

Determine the general expression for the moment of F about (*a*) point B and (*b*) point O. Evaluate your expressions for F = 750 N, R = 2.4 m, θ = 30°, and φ = 15°.