



SN: _____, Name: _____

Chapter 10-11, Serway; **ABSOLUTELY NO CHEATING!**

Please write the answers on the blank space or on the back of this paper to save resources.

- Find the net torque on the Wheel in Figure 1 about the axle through O, taking $a = 10.0$ cm and $b = 25.0$ cm.

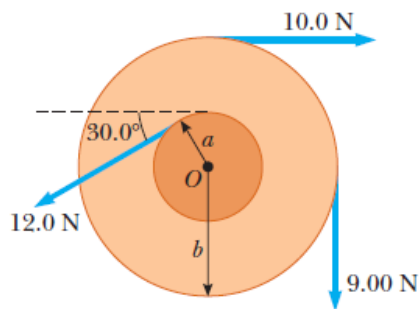


Figure 1

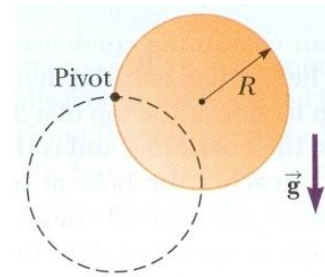


Figure P10.53

- A uniform solid disk of radius R and mass M is free to rotate on a frictionless pivot through a point on its rim (Fig. P10.53). If the disk is released from rest in the position shown by the copper-colored circle, (a) what is the speed of its center of mass when the disk reaches the position indicated by the dashed circle? (b) What is the speed of the lowest point on the disk in dashed position? (c) **What If?** Repeat part (a) using a uniform hoop.
- Two vectors are given by $\vec{A} = \hat{i} + 2\hat{j}$ and $\vec{B} = -2\hat{i} + 3\hat{j}$. Find (a) $\vec{A} \times \vec{B}$ and (b) the angle between \vec{A} and \vec{B} .
- A uniform solid disk of mass $m = 3.00$ kg and radius $r = 0.200$ m rotates about a fixed axis perpendicular to its face with angular frequency 6.00 rad/s. Calculate the magnitude of the angular momentum of the disk when the axis of rotation (a) passes through its center of mass and (b) passes through a point midway between the center and the rim.