

# PHYSICS 151 READING

## ASSIGNMENT FOR NOVEMBER 5

### SECTIONS 7.2 - 7.3

Please notice that this file is two pages long.

#### 7.3 - Torque

- Torque - How “effective” a force is at causing rotation.
- Unit  $N \cdot m$  - which we do not call a Joule to keep torque separate from energy.
- Only the component of the force perpendicular to the radial line causes torque
- The perpendicular distance is useful for vertical or horizontal forces, but otherwise, it’s probably best to stick with  $\tau = rF \sin \phi$ .
- To find the net torque we have to figure out whether the torque is trying to cause counter-clockwise or clockwise rotation. As is usual, counter-clockwise is made positive in the standard convention.

#### 7.3 - Gravitational Torque and the Center of Gravity

- Center of Gravity - the point where the entirety of the weight seems to act.

- Gravitational torque is one problem where I will expect you to use perpendicular distance.
- For symmetric objects with a uniform density, the center of gravity is located at the center.
- Finding the center of gravity for non-symmetric objects is something I don't require students to do. You should read this rest of this section for your own interest.