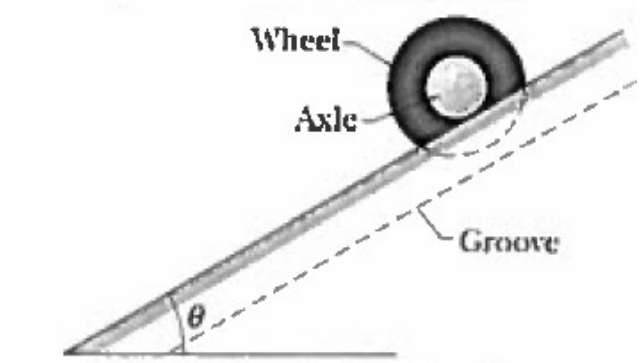
**Physics 211 Problem Set 11 Due Fri, 10/15/19**
**Last Name:_____ First Name _____**
**Workshop time or section:_____TA name or Room # _____**

Please submit your homework on this sheet. If you need more space than is available, please attach additional sheets of paper.

1. A uniform wheel of mass 12 kg and radius 0.4 m is mounted rigidly on a massless axle through its center. The radius of the axle is 0.2 m, and the rotational inertia of the wheel-axle combination about its central axis is 0.6 kg $m^2$. The wheel is initially at rest at the top of a surface that is inclined at angle $\theta=30^o$ with the horizontal. The axle rests on the surface while the wheel extends into a groove in the surface without touching the surface. Once released, the axle rolls down along the surface without slipping. When the wheel-axle combination has moved down along the surface by 5 m, what is its center-of-mass velocity?



2. Applying Newton's 2nd Law find the acceleration of the center-of-mass of the wheel in the previous problem.