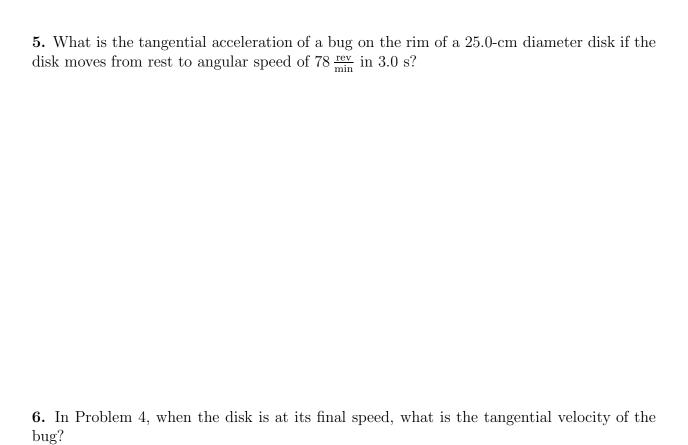
## Phys 2010 (NSCC), Fall 2006 Problem Set #10

1. A wheel has a radius of 3.2 m. How far does a point on the circumference travel if the wheel is rotated through angles of (a) 20 radians (b) 20 degrees (c) 20 revolutions. (In all cases use the arclength formula  $s = \theta r$ .)

2. If a rotating wheel makes 25.0 revolutions in one minute, find its average angular speed in  $\frac{\text{rad}}{\text{s}}$ .

3. A potter's wheel moves from rest to an angular speed of 0.25  $\frac{\text{rev}}{\text{s}}$  in 40 s. Find its angular acceleration in  $\frac{\text{rad}}{\text{s}^2}$ .

4. A machine part rotates at an angular speed of  $0.60 \frac{\text{rad}}{\text{s}}$ ; its speed is then increased to  $2.2 \frac{\text{rad}}{\text{s}}$  at an angular acceleration of  $0.70 \frac{\text{rad}}{\text{s}^2}$ . Find the angle through which the part rotates before reaching this final speed.



7. A circular disk with a radius of 0.15 m rolls without slipping on a level surface with an angular speed of  $6.5 \, \frac{\rm rev}{\rm s}$ . What is the speed of the center of mass of the disk?

8. Calculate the net torque on the beam shown at the right about the point C.

