1. The tub of a washer goes into its spin-drycycle, starting from rest and reaching an angular speed of 7.8 rev/s in 3.4 s . At this point the person doing the laundry opens the lid, and a safety switch turns off the washer. The tub slows to rest in 15.1 s .

Through how many revolutions does the tub turn? Assume constant angular acceleration while it is starting and stopping.

Answer in units of rev.
==============================================================

* 1. A race car starts from rest on a circular track of radius 256 m. The car’s speed increases at the constant rate of 0.384 m/s^2. At the point where the magnitudes of the radial and tangential accelerations are equal,determine the speed of the race car. Answer in units of m/s
	2. Find the distance traveled at the same moment. Answer in units of m
	3. Find the elapsed time at the same moment. Answer in units of s
	=========================================================
1. A small turtle, appropriately named “Dizzy”, is placed on a horizontal, rotating turntable at a distance of 16.3 cm from its center. Dizzy’s mass is 66.6 g, and the coefficient of static friction between his feet and the turntable is 0.43. Find the maximum angular velocity the turntable can have if Dizzy is to remain stationary relative to the turntable. The acceleration of gravity is 9.8 m/s^2. Answer in units of rev/s
2. The turntable starts from rest at t = 0, and has a uniform acceleration of 1.21 rad/s^2. Find the time at which Dizzy begins to slip.Answer in units of s
===========================================================
3. Consider a thin 8 m rod pivoted at one end. A uniform density spherical object (whose mass is 8 kg and radius is 1.3 m) is attached to the free end of the rod and the moment of inertia of the rod about an end is Irod =1/3 mL^2 and the moment of inertia of the sphere about its center of mass is Isphere =2/5 mr^2.

 

What is the angular acceleration of the rodimmediately after it is released from its initial position of 64\_ from the vertical? The acceleration of gravity g = 9.8 m/s^2 .

Answer in units of rad/s^2
===================================================================================

1. 1. A wheel of radius 4 m, mass 78 kg, and moment of inertia 34 mr^2 about the center of mass is mounted on a frictionless horizontal axle as shown in the figure. A light cord wrapped around the wheel supports an object of mass twice that of the pulley. The weight is released from rest at the level of A and falls a distance 89 m, past level B.



Find its speed as it passes by the level of B, where the vertical distance AB is 89 m. The acceleration of gravity is 9.8 m/s^2 . Answer in units of m/s

 2. Determine the tension of the string. Answer in units of N

1. Consider the setup shown, where the inclined plane has a frictionless surface. The locks have masses m2 and m1. The pulley has mass m3, and is a uniform disc with radius R. Assume the pulley to be frictionless.



What is the acceleration of the blocks? Assume the mass m1 is more massive and is

descending with acceleration a. The moment of inertia of a disk is ½ M R^2. The acceleration of gravity is 9.8 m/s^2. Answer in units of m/s^2