Name: _____

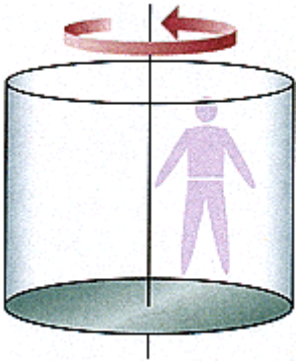
Date: _____

Section C D F

The Masters School DOBBS
Mr. Alex Rawson
Physics

Rotational Motion IV

1. In a popular amusement-park ride, a cylinder of radius 3.00 m is set in rotation at an angular speed of 5.00 rad/s, as shown in Figure 7-20. The floor then drops away, leaving the riders suspended against the wall in a vertical position. What minimum coefficient of friction between a rider's clothing and the wall of the cylinder is needed to keep the rider from slipping? (*Hint*: Recall that $F_s = \mu_s F_n$, where the normal force is the force that maintains circular motion. Your answer should be between 0.1 and 0.2)



2. A copper block rests 45.0 cm from the center of a steel turntable. The coefficient of static friction between the block and the surface is 0.44. The turntable starts from rest and rotates with a constant angular acceleration of 0.40 rad/s^2. After what time interval will the block start to slip on the turntable? (*Hint*: first find ω_f, then find Δt. Your answer should be between 6 and 9 seconds.)