

## Angular Acceleration and Torque

1. A spool of wire has a radius of 0.4 m and 4 kg mass. If you pull the wire with a 20 N force, what angular acceleration will this cause on the spool? Assume the spool is a solid rod.
2. A golfer applies 50 Nm of torque to his golf club. Assuming the club is a 1 m long rod, with mass of 0.5 kg attached to a 0.5 kg head, what angular acceleration will this create?
3. How much torque will be required of your hip muscles to swing your leg at an angular acceleration of  $5 \text{ rad/s}^2$ , if you assume the leg is a solid stick with mass of 20 kg and length of 1 m.
4. How much torque is required to accelerate a DVD from rest to its operating speed of 4 rad/s, in 2 seconds, if the DVD is 50 grams and has a diameter of 20 cm?