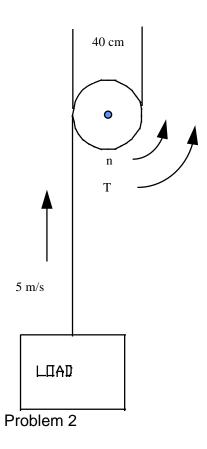ET332a
Mechanics for Motors and Generators Homework

1.) An electric motor in a trolley bus develops an output power of 80 hp at 1200 rpm as
   the bus moves up a hill at a speed of 30 mph. Assuming all mechanical losses are
   negligible, find:
       a.) the torque in N-m that the motor develops
       b.) the linear force that opposes the motion of the bus in N

2.)   A motor drives an electric hoist that is lifting a mass of 800 kg at a constant velocity
   of 5 m/s. The hoist drum has a diameter of 40 cm. Calculate the torque in N-m that
   the motor develops and the speed of the motor in rpm.

40 cm

n

T

5 m/s

LOAD

Problem 2