Homework Assignment:

1. You have a front-loaded washing machine, which has a mass of 81 kg. When you load the machine with 16 kg of clothes, you notice that the machine shakes so much that you are afraid that it will break the floor below it. You estimate that the current stiffness of the internal system is 20e4 N/m and that the damping is 10 kg/s. Assuming that the machine rotates at a constant angular velocity of 900 RPM and that the clothes are offset from center by a radius of 0.3 m:
   a. Draw a sketch of the system.
   b. Draw a circuit diagram that adequately models the system.
   c. Plot the displacement as a function of time.
   d. Design a spring-damper system that will go underneath the washing machine. You are tasked with reducing the amplitude of vibration so that it doesn't exceed 2 cm. How does the additional components fit into your sketch and circuit diagram? Prove that your system works.