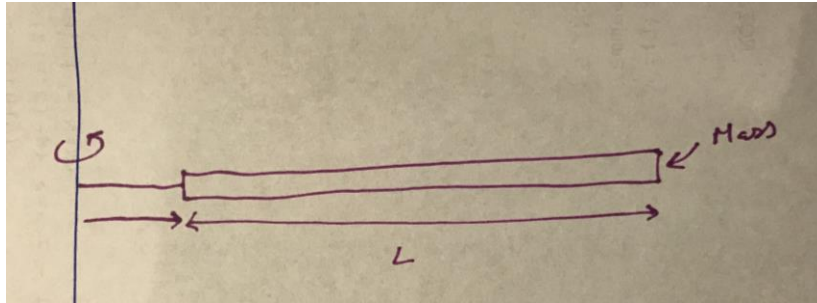


1. Find the moment of Inertia of a uniform rod of length 1 m and mass 1 Kg, when it is connected to a small string of length 0.25 m to the axis of rotation:

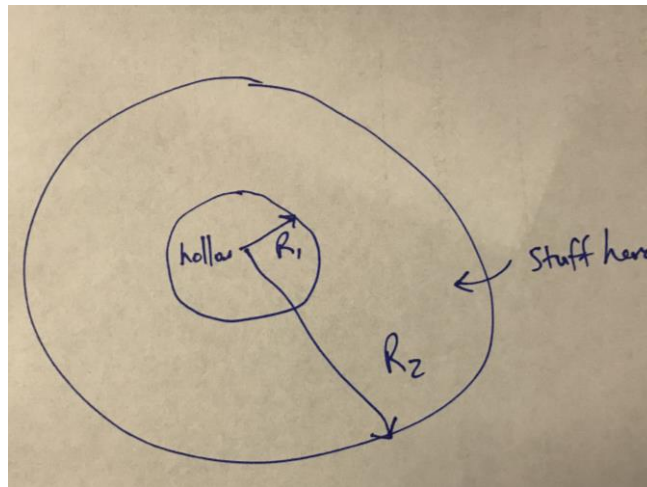


- a. Define the values  $x$ ,  $dx$ ,  $dm$  exactly how we did in class. Drawing is helpful
- b. Solve for  $dm$
- c. Set up the integral for the moment
- d. Where does the mass start where does the mass. Use these on the limits of integration.
- e. Solve

- OR -

- a. Use the parallel axis theorem.

2. Find the moment of Inertia of a uniform disk with radius 5 cm with a 2 cm hole in the middle. The mass is 3g.



- a. Think of this has hoops starting at  $R_1$  and going to  $R_2$ .
- b. Set up  $dm/da = M/A$  the exact way as before. Your area  $da$  will be  $2\pi r dr$  but what will the area of the shape be. Hint: There is a giant hole in the middle.
- c. What would your limits of integration be? Where does it start, where does it end?
- d. Get the answer