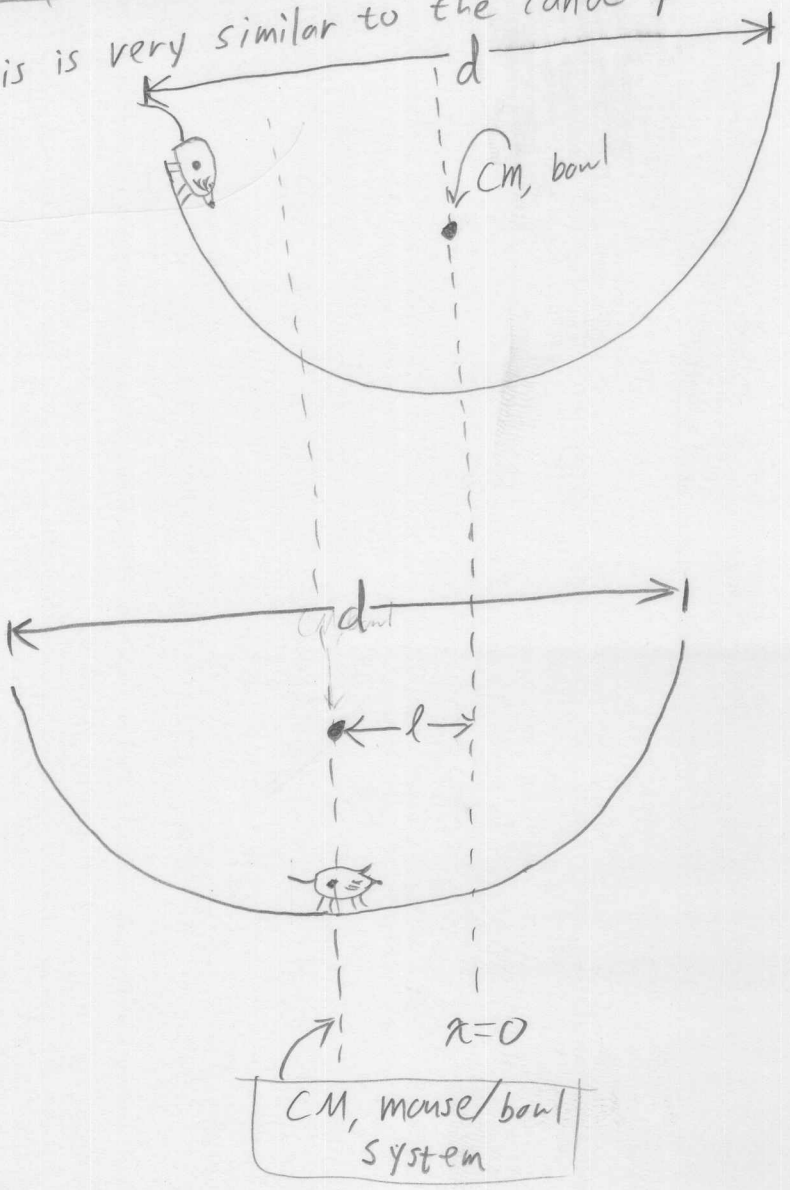
cs 111
mework

a-38 This is very similar to the canoe problem.



m_m = mouse mass

m_B = Bowl mass

d = Bowl diameter

$$l = \frac{d}{10}$$

$$r_{BI} = 0$$

$$r_{mI} = -d/2$$

$$r_{BF} = -l = -\frac{d}{10}$$

$$r_{mF} = -l = -\frac{d}{10}$$

Assuming the center of mass of the bowl is directly in the center, both the mouse and bowl must have the same x-coordinate when the mouse is in the bottom.

$$\frac{+m_m \frac{d}{2}}{m_m + m_B} = \frac{+m_m \frac{d}{10} + m_B \frac{d}{10}}{m_m + m_B} \Rightarrow 5m_m - m_m = m_B$$

$$\boxed{m_B/m_m = 4}$$