

9-1)

A beam of mass  $M$  and length  $L$  is supported from the ceiling by two strings, as shown.



- If the beam is uniform, show that  $\theta = \phi$ .
- If the beam has its center of mass  $\frac{3}{4}$  of the way from the left end, show that  $\tan\theta = 3\tan\phi$ .