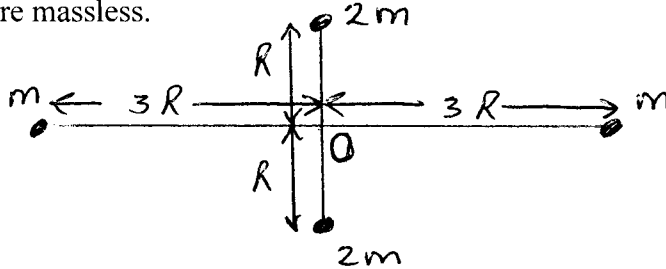


**Assignment 8**  
**Moment of Inertia**

1. The object shown below is spun about an axis through O perpendicular to the page. Find the moment of inertia assuming the bars connecting the masses are massless.



2. A cone having radius  $R$  and length  $l$  is rotated about its axis. Find its moment of inertia.
3. Find the moment of inertia of a one dimensional bar of mass  $m$  and length  $l$  if
- The bar is rotated about an endpoint.
  - The bar is rotated about its midpoint.
  - Verify that your answers to a and b agree with the parallel axis theorem for moment of inertia.
4. Find all 9 components of the moment of inertia tensor for a one dimensional bar of length  $l$  and mass  $m$ . Choose the origin to be at the midpoint of the bar.