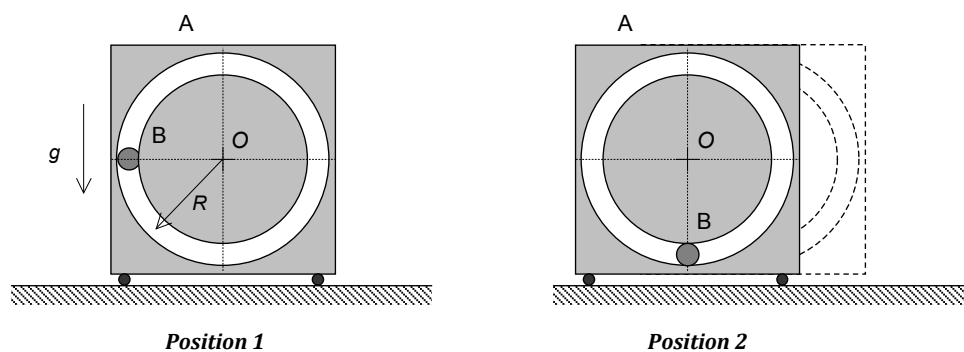


**Homework H.4.N**

**Given:** Particle B (having a mass of  $m$ ) is constrained to move within a circular slot (of radius  $R$ ) that is cut into block A (having a mass of  $M$ ). The system is released from rest with particle B on a horizontal line passing through the circle's center  $O$ . Consider all surfaces to be smooth.

**Find:** For this problem:

- Determine the velocities of A and B when B has moved position 2 where B is directly below  $O$  (write your answers as vectors);
- Determine the work done on block A in moving from position 1 to position 2.



Use the following parameters in your analysis:  $m = 30$  kg,  $M = 50$  kg and  $R = 0.5$  m.