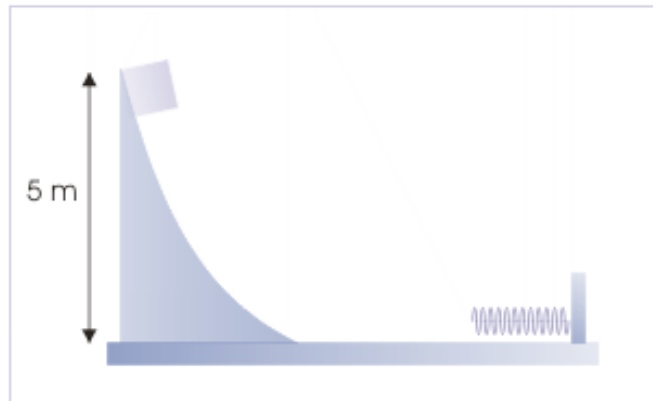


**Problem :** A small block of 0.1 kg is released from a height 5 m as shown in the figure. The block following a curved path transitions to a linear horizontal path and hits the spring fixed to a wedge. If no friction is involved and spring constant is 1000 N/m, find the maximum compression of the spring.

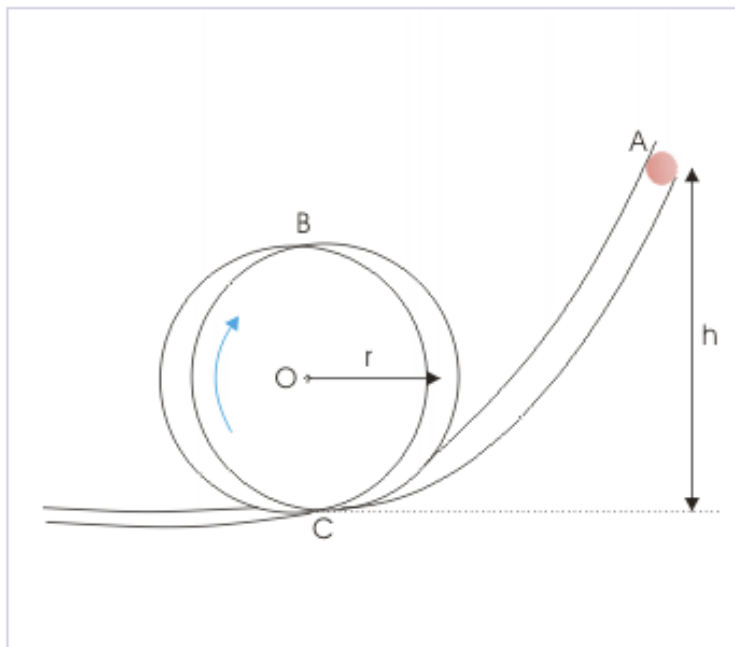
**Motion of a block**



**Figure 1**

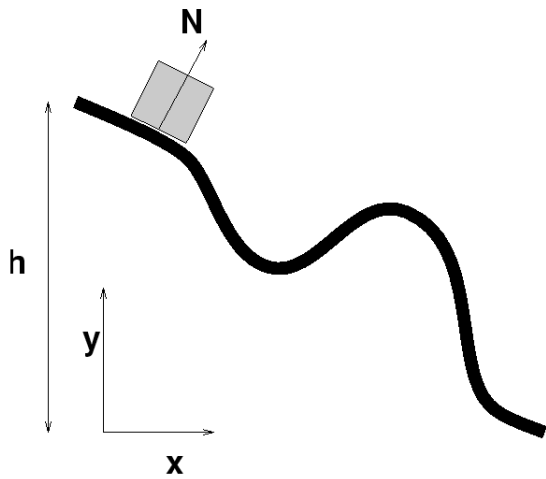
**Problem 2:** The ball is released from a height “h” along a smooth path shown in the figure. What should be the height “h” so that ball goes around the loop without falling of the track ?

**Vertical circular motion**



**Figure 4:** The ball does not fall off the track.

**Problem 3:** Consider the slide below, and assume that its quite frictionless. If the object shown starts out at rest at a height and is let go, what is its speed at the bottom?



**Problem 4:** A block is placed on the top of a sphere and released from rest. At what height does it lose contact with the sphere? Assume there is no friction.