Homework 5.

Please try to solve the problems below:

1. An ice cube is sliding down the track with a vertical loop (see figure above). The radius of the loop is given. Find the minimum initial height of the ice cube to go all way along the loop. Neglect the friction.



2. (*This problem is challenging. To solve it, you have to remember the expression for the gravity force*) At the equator of a planet the weight of an object is twice less than that at the pole. The density of the planet material is $3x10^{3}$ kg/m³. Find the period of the planet's rotation.