Please answer the questions below in the space provided or on your own sheet of paper. Show all your work!

1. An Indy car has a mass of approximately $715\,$kg and wide racing slick tires that have a coefficient of static friction with the road equal to 0.8 and a coefficient of kinetic friction equal to 0.7. In an effort to *spruce* up the racing scene, organizers have decided to have races with the tracks tilted 90° to a normal road (see picture). Indy car's can reach speeds of 230mph, and you can assume they are at maximum speed before they enter the sideways track.
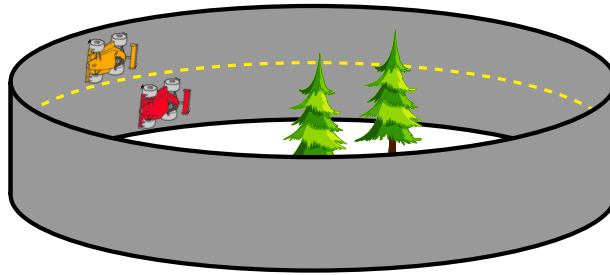
   (a) (4 points) If the race organizers want to build a track with the largest radius possible, how large can they build it and still have an Indy car be able to stay on the track?

(b) (6 points) It begins raining, lowering the coefficient of static friction to 0.75 (but not effecting the kinetic coefficient). If the road is 20 m wide and cars start at the very top of the road, will they be able to complete one full revolution before sliding off the track? Be sure to justify your answer.