Module 06 - Lesson 2
Dynamics of Circular Motion

Question 1: A 2-g bug falls onto the rim of a spinning vinyl record. If a 15 N radial force acting on the bug makes it rotate on the record, find the minimum coefficient of static friction between the bug and the surface of the record required to keep the bug on the disk.

Question 2: A highway turn of radius 300 m is banked at an angle of $10°$ from the horizontal. If the horizontal component of the normal force acting on a car prevents the car from skidding, what is the maximum speed at which a 1000-kg car can safely take the turn?

Problem: A tether-ball is struck so that it goes into circular motion in a horizontal plane. If the length of the rope is 2.0-m and the rope makes an angle of $15°$ to the vertical, find the speed of the ball.