Sample Problem 1 (Ch. 6, #36)

Suppose the coefficient of static friction between the road and tires on a car is 0.60 and the car has no negative lift. What speed will put the car on the verge of sliding as it rounds a level curve of radius 30.6 m?
A student of weight 667 N rides a steadily rotating Ferris wheel (the student sits upright). At the highest point, the magnitude of the normal force $F_N$ on the student from the seat is 556 N.

(a) Does the student feel light or heavy there?

(b) What is the magnitude of $F_N$ at the lowest point?

(c) If the wheel’s speed is doubled, what is $F_N$ at the highest and lowest points?