

Circular Motion Homework 2

Use 10 m/s/s for g

1. A 1 kg rock tied to a 2 m long string swings in a horizontal circle with a speed of 5 m/s. What's the tension in the string?
2. A 2000 kg car is driving around a 200 m radius turn with a speed of 15 m/s. How large is the friction force on the car?
3. What is the maximum safe speed a car can drive around a 100m radius turn if the coefficient of friction between the tires and road surface is .8?
4. A .5 kg mass tied to a 1 m long string is swung in a vertical circle. If the speed of the mass is 5 m/s, what is the tension in the string at the bottom of the swing?
5. A car is driving over a 20 m radius hill on a road. What is the maximum speed the car can have and not fly off the road?