

# Centripetal Forces Worksheet

1. A 20 gram ball around in a horizontal circle 80 times per minute if the ball is attached to a 60 cm long string.

a) Find the angular speed of the ball.

b) Find the force in the string – (assume no gravity).

2. The same ball is now whirled in a vertical circle (now there is gravity). What will be the tension (force) in the string at the bottom and top of the circle?

3. Your car rounds a curve of 50 m radius at 50 km/hr. What force is needed to keep your car turning in this circle if its mass is 2000 kg? (this force is caused by the tire's friction with the road)

4. A roller coaster car is cresting a hill at 10 m/s . If the hill has a 30 m radius, what force will the 70 kg rider feel from the seat of the coaster? (the seat force is the normal force)