Name: Period:

Circular Motion 2 Worksheet

1. A 0.5kg ball moves in a circle that is .4m in radius at a speed of 4.0m/s. Calculate the centripetal acceleration.

2. Calculate the centripetal force on the ball in question #1.

3. A toy cart at the end of a 0.7m string moves in a circle on a table. The cart has a mass of 2.0kg and the string has a breaking strength of 40.N Calculate the maximum speed the cart can attain without breaking the string.

4. A string 1.0m long breaks when its tension is 100N. What is the greatest speed at which it can be used to sling a 1kg stone? (Neglect the gravitational pull on the stone.)

5. What is the centripetal force needed to keep a 3.0kg mass moving in a circle of radius of .5m at a speed of 8.0m/s?

6. A 2.0×10^3kg car is rounding a curve of radius 200m on a level road. The maximum frictional force that the road can exert on the car is 4.0×10^3N. What is the highest speed at which the car can round the curve?