**Centripetal acceleration & Force Quiz**

Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Date: \_\_\_\_\_\_\_\_\_\_\_\_Period: \_\_\_\_\_\_\_\_\_

$a\_{c}=\frac{v^{2}}{r}=\frac{4π^{2}r}{T^{2}}$ $F\_{C}=ma\_{c}$ $v=\frac{d}{t}=\frac{2πr}{T}$

UNITS

 m, kg, s

1. A 2.7x103 kg satellite orbits the Earth at a distance of 1.8x107km from the Earth’s core at a speed of 4.7x103 m/s. What force does the Earth exert on the satellite? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. A 6,500lb car is moving on a circular path of radius 2.3km. If it completes 5 complete loops in 4.30min, calculate:

 a. centripetal acceleration in m/s2 \_\_\_\_\_\_\_\_\_\_\_\_\_\_

 b. centripetal force \_\_\_\_\_\_\_\_\_\_\_\_\_\_

II. Answer the following multiple choice questions.

\_\_\_\_\_\_\_\_1. When an object experiences uniform circular motion, the direction of the acceleration is

 a. in the same direction as the velocity vector.

 b. in the opposite direction of the velocity vector.

 c. is directed toward the center of the circular path.

 d. is directed away from the center of the circular path.

\_\_\_\_\_\_\_\_2. What type of acceleration does an object moving with constant speed in a circular path experience?

 a. free fall b. constant acceleration c.linear acceleration d.centripetal acceleration

\_\_\_\_\_\_\_\_\_3. Two objects attract each other gravitationally.  If the distance between their centers is cut in half, the gravitational force?

 a. is cut to one fourth b. is cut in half. c.doubles. d. quadruples

4. Find the net force on B if mA=8kg, mB=5kg and mC=6kg \_\_\_\_\_\_\_\_\_\_\_\_\_

8cm

5cm



