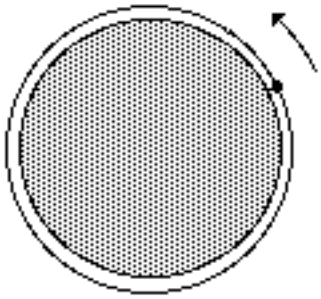
Name_____

Date _____ **Pd**____

Unit VIII: Worksheet 4

1. The gravitational field strength on the moon, which has a radius of 1.74×10^6 m , is approximately 0.17 as large as the gravitational field strength at the surface of the earth. How much would a 1500 kg satellite weigh at the surface of the moon?

   Assume that the diagram below represents the orbit of the satellite around the moon at an altitude of 100 km.



2. Construct a force diagram of the satellite in orbit.

3. Demonstrate the direction of the acceleration, if any, by means of a motion map.

4. What is the radius of the orbit of the satellite?

5. What is the orbital speed of the satellite?

6. What would be the orbital period of the satellite (in hours)?

7. If the satellite were to change its orbit so that it was now at an altitude of 50 km, would it have to speed up or slow down? By what factor is the velocity changed? Explain.