Satellites in Circular Orbit:

1. Find the orbital speed of a 985kg satellite 1200km above Earth.

2. Find the orbital speed of a 12500kg satellite 1200km above Earth.

3. Find the orbital speed of a 2.60kg satellite 1200km above Earth.

4. Find the orbital speed of a 1.76x109kg satellite 1200km above Earth.

5. Do you get the point?

6. A satellite orbits Earth once every 36hours.

 a. What is the orbital radius?

 b. What is the speed of the satellite?

 c. What is the height of the satellite?

7. The distant planet Sebadoh has two moons. Both moons orbit Sebadoh in near circular orbits. The first moon (named Lou) has an orbital radius that is double the orbital radius of the second moon (named Eric). That is to say rLou=2rEric.

a. If the orbital speed of Lou is 4.0x103m/s, what is the orbital speed of Eric?

b. If the period of Lou’s orbit is 17 Earth hours, what is Eric’s orbital period?

8. What is the orbital period of a satellite 1450km above Earth?

9. What is the orbital period of a satellite 780km above Earth?

10. What is the orbital period of a satellite 450km above Earth?

11. Satellite A is 830km above planet Googembogger. Satellite B is 1250km above Googembogger. Which satellite has the shorter orbital period?

12. The distant planet Yo La Tengo has three moons, Ira, Georgia and James. Ira has an orbital radius 2.0x107m, and an orbital speed 1.2x103m/s. Georgia has an orbital radius of 4.0x107m and James has an orbital speed of 2.4x103m/s. Find Georgia’s orbital speed and James’ orbital radius.

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