**Orbit Problems:** Name

1. What is the orbital velocity 3400 m from the center of a 5.6 x 1018 kg asteroid? (331.4 ≈ 330 m/s)

2. You find that you can orbit at 516 m/s 12,150 m from the center of a small moon. What is its mass? (4.85 x 1019 kg)

3. A satellite orbits a planet at a distance of 7.5 x 106 m from the center every 8900 seconds. What is the mass of the planet? (3.2 x 1024 kg)

4. What distance from the center of Earth’s moon is your orbital velocity 120 m/s? (3.4 x 108 m)

5. What is the period of orbit of a satellite that orbits 1.95 x 106 m from the center of Earth’s moon? (7730 s)

6. What is the radius of an orbit with a period of 3.16 x 107 s around the sun? (1.50 x 1011 m – yep – it’s the earth)

Use  or  Which come from: , and  and 

Useful things to know:

|  |  |  |  |
| --- | --- | --- | --- |
| Mass of the Earth | 5.97x1024 kg | Radius of the Moon | 1.738x106 m |
| Mass of the Moon | 7.35x1022 kg | Radius of the Earth | 6.38x106 m |
| Mass of the Sun | 1.99x1030 kg | Earth-Moon Distance | 3.84x108 m |
| G = 6.67 x 10-11 Nm2/kg2 |  | Earth-Sun Distance | 1.496x1011 m |