**IB Physics**

**FA 5.3 - Orbit**

Name

Show your work, round to the correct significant figures, circle your answers, and label them with units.

1. What is the force of gravity between the Philae probe with a mass of 100. kg and comet 67P with a mass of 1.05x1013 kg if the probe is resting on the surface of the 2.05 km radius comet. (That we will pretend is spherical - it's highly not) (answer )

2. What distance needs to separate the centers of two 5.20 kg spheres so that the force of gravity between them is 1.20x10-9 N (answer)

3. Your 12,500 kg spaceship is orbiting 1.16x107 m from the center of a planet every 17,500 s. What is the mass of the planet? (3.02x1024 kg)

4. At what distance from the center of our 7.35x1022 kg moon is the orbital velocity 340. m/s? (answer)

5. Draw the new orbit: (Circle or oval indicates your current orbit)

 Slow at x: Speed up at x: Speed up at x:

x

x

x