

Pluto Satellites (15 points).

- 9.1** The mass of Charon, the biggest satellite of Pluto, is $1/8$ th the mass of Pluto. 15.0pt
Both bodies move in a circular orbit around a common center of mass. In addition, they both are tidally-locked.
The distance between the center of the planet and the center of the satellite is $R = 19\,640\text{ km}$ and radius of the satellite is $r = 593\text{ km}$.
- Let g_0 be the gravitational acceleration on the surface of Charon due only to its mass. Let A be the point on Charon surface directly facing Pluto, and B the point diametrically opposite. Compute the percentage difference between gravitational acceleration at A and B respect to g_0 .