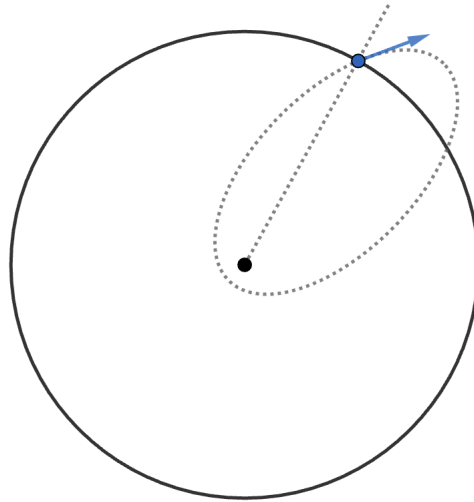# 2011 F=ma Exam: Problem 23

Kevin S. Huang

- A) Not correct since a sphere can be replaced with a point mass anywhere outside of the sphere.

- B) Not correct since the ground only prevents the particle from continuing its orbit.

- C) Not correct since the particle is a bound object as it falls back to the planet.

- D) Not correct since Kepler's laws don't depend on the size of the orbits.

- E) Correct because the laws of projectile motion make the approximation that gravity is constant while it decreases inverse square with respect to distance.

Thus, the answer is $\boxed{\text{E}}$.