Lab Discussion Question 1:

$F_{P/}F_E$ for the Moon = 0.17

An object that exerts a force of 10 N on Earth would exert a force of 0.17 x 10 N = 1.7 N on the Moon.

Lab Discussion Question 2:

$F_{P/}F_E$ for Jupiter = 2.53

An object that exerts a force of 10 N on Earth would exert a force of 2.53 x 10 N = 25.3 N on Jupiter.

Lab Discussion Question 3:

The object's mass would not change simply by moving it from one place to another, however, its weight would change, since weight is the result of the gravitational pull on one object by another object.

Lab Discussion Question 4:

Column N lists the circular velocities for the solar system objects in this lab. The lowest value in that column is 507 m/s for Ceres.

Lab Discussion Question 5:

Large objects, including the Sun and the jovian planets, have more gravity than smaller objects, including the terrestrial planets. Column P lists the escape velocities for the solar system objects used in this lab. Note that the escape velocities for the Sun and jovian planets are far greater than those for the terrestrial or dwarf planets. This means that atoms or molecules need to be moving much faster and have much more energy to escape from the larger objects than the smaller objects. As a result, the larger objects also have larger atmospheres with lighter elements, including hydrogen and helium, which escape far more easily from the atmospheres of the smaller objects.