

NAME:

SECTION:

1. Given that the acceleration due to gravity at Earth's surface is  $9.8m/s^2$ , and that the radius of the Earth is about  $6.4 * 10^6m$ , and that  $G = 6.67 * 10^{-11}m^3/kg/s^2$ , calculate the mass of the Earth.

2) Given that the acceleration of gravity at the surface of Mars is about 40% of what it is on Earth, and that Mars' radius is  $3.4 * 10^6m$ , calculate the mass of Mars.

3. At what distance from the Earth will a spacecraft traveling from the Earth to Mars experience no net gravitational force from either body? Given: the distance from the Earth to Mars is  $3.8 * 10^{11}m$ .