G, g, and Gee Whiz

1. Use the gravitational force equation to fill in the following table ($G = 6.673 \times 10^{-11}\ N \bullet m^2/kg^2$).

Mass of Object 1 (kg)	Mass of Object 2 (kg)	Distance of Separation* (m)	F_{grav} (N)	Significance of Numbers
60.0	60.0	1.0		Two typical students in physics class
60.0	5.98×10^{24}	6.37×10^{6}		A typical student on the surface of the Earth
60.0	11.96×10^{24}	6.37×10^{6}		A typical student on *an Earth* with twice the mass
60.0	5.98×10^{24}	3.18×10^{6}		A typical student on *an Earth* with half the radius
60.0	5.98×10^{24}	6.47×10^{6}		A *typical* student in orbit 60 miles above the Earth
60.0	1.2×10^{22}	1.15×10^{6}		A *typical* student on the surface of the Pluto
60.0	1.901×10^{27}	6.98×10^{7}		A *typical* student on the "surface" of the Jupiter

*The distance of separation means the distance between the centers of the two masses (NOT the distance between the two objects' edges.)

2. Use the gravitational acceleration equation to fill in the following table ($G = 6.673 \times 10^{-11}\ N \bullet m^2/kg^2$).

Mass of Object Creating the Field (kg)	Distance of Separation* (m)	g (m/s^2)	Significance of Numbers
5.98×10^{24}	6.37×10^{6}		On earth's surface
5.98×10^{24}	6.48×10^{6}		60 miles above earth's surface
5.98×10^{24}	42.3×10^{6}		Above earth's surface in a geosynchronous orbit
1.2×10^{22}	1.15×10^{6}		On Pluto's surface
1.901×10^{27}	6.98×10^{7}		On Jupiter's "surface"

*The distance of separation means the distance between the centers of the two masses (NOT the distance between the two objects' edges.)