AY 5, Summer Session I, 2008:  
Quiz #5b

Draft: July 25, 2008

Instructions: Answer all three questions. Show your work.

1. (7 pt.) Describe Newton’s Law of Gravitation (given below) in words and describe its trend(s). By “trend,” I mean how the force changes as you change some property of the system.

\[ F = \frac{G M_1 M_2}{R^2} \]

2. (5 pt.) What is the value of Planck’s constant times the speed of light (i.e., \( h \cdot c \)) in units of eV nm?

Planck constant \( h = 6.626 \times 10^{-34} \) Js

Speed of light \( c = 3 \times 10^5 \) km/s

Prefix: kilo = \( 10^3 \) or thousand; denoted as k (e.g., 11 kiloparsec = 11 kpc).

Prefix: nano = \( 10^{-9} \) or one-billionth; denoted as n (e.g., 10 nanoseconds = 10 ns).

1 eV = \( 1.602 \times 10^{-19} \) J

3. (2 pt.) How would you make a scale model of the Solar System? There are two important steps.