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 $h = 6.626 \times 10^{-34}\,\mathrm{J\,s}$

   Speed of light $c = 3 \times 10^5\,\mathrm{km/s}$

   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 $= 1.602 \times 10^{-19}\,\mathrm{J}$

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