GPHYS 515/415 Problem set 2
Due Friday Jan 24, 2014

Read Parks Chapter 4

Problems:

1. Parks Chapter 4 **problem 5** (p. 163)
2. Parks Chapter 4 **problem 6** (p. 163)
3. Parks Chapter 4 **problem 7** (p. 163)
4. Parks Chapter 4 **problem 8** (p. 163)
5. Parks Chapter 4 **problem 9** (p. 163)
6. Parks Chapter 4 **problem 10** (p. 163)

Extra Credit:
A satellite has apogee of $r = 2.5\ R_e$ and is instantaneously located at a magnetic latitude of 60° North. (R_e = Earth's radius and 60° is the angle between magnetic equator and r).

   a. What is the magnetic latitude of the magnetic field line passing thorough the satellite where it hits the Earth's surface?
   b. If the satellite orbit has a perigee of $1.1 R_e$, what is the magnetic latitude of the magnetic field line passing through the satellite at perigee?
   c. Is there an orbit which satisfies these criteria (2.5 R_e apogee at 60° N and perigee of $1.1 R_e$) and passes directly over the **geographic** north pole? Why, or Why not?