1) Problem 6.3 (a, b and c) from the second edition of Planetary Sciences (de Pater & Lissauer).

2) Problem 6.15 (a and b) from the second edition of Planetary Sciences (de Pater & Lissauer). Hint for b): solve separately for the contributions to the pressure from the core and from the mantle.

3) Use the equation for gravitational acceleration, what you have learned from question 2) above, and (if you wish) sketches of internal radial profiles to show that it is not possible to derive a unique radial mass distribution of a spherically symmetric planet from the observed surface value of the gravity field alone. Discuss - in a few sentences - the implications of this in the context of constraining the interior structure of small/terrestrial exoplanets, given what we have learned in class about which properties of exoplanets are currently measurable.

4) Problem 9.1 (a and b) from the second edition of Planetary Sciences (de Pater & Lissauer). To help with this problem, sketches are encouraged though not mandatory.

5) A comet's perihelion distance is 1 AU, and its aphelion distance is 15 AU. In the following, we make a very crude calculation of the average rate of shrinkage of the comet.
   a) Calculate the comet's orbital period.
   b) Estimate how many meters of ice the comets will lose each time it orbits the Sun. Assume typical value of cometary density.

6) Essay question. (For PHYS 480 students, this is an optional/bonus question.) In the textbook and in class was covered the topic of plate tectonics, with a focus on Earth. Discuss the prospect/detection/evidence of (past) active plate tectonics on other planets and satellites in the solar system, and contrast with Earth. Research this a bit and discuss briefly what you think the implications of plate tectonics are on terrestrial exoplanets (including super-Earths).
   Don't forget to address the role of surface water in your discussions.
   Write approximately 2 pages (single-spaced, Times fontsize 11, 1 inch margins), plus references (you should be using references for this one).