

**Homework 5.** *Gravity, Isostasy, and Internal Structure of the Earth*

Yuri Fialko, May 15, 2008 (due May 22)

Name: \_\_\_\_\_

- 1) True or False: Oceanic crust more readily subducts than continental crust because oceanic crust is more dense than continental crust.” Discuss your answer, including sketches/computations as support.
  
- 2) Draw a block diagram of a mountain range in Airy isostatic equilibrium. Assume the following parameters: topographic relief of 2 km; crustal density of  $2.8 \text{ gm/cm}^3$ ; mantle density of  $3.3 \text{ gm/cm}^3$ ; crustal thickness outside the range of 35 km; 60 km depth of compensation. Calculate and show on the model the change in Moho depth needed to compensate the topography.
  
- 3) What is asthenosphere? Describe what observations/inferences are used to study asthenosphere and its properties. What role does asthenosphere play in global tectonics?
  
- 4) What observations indicate that the Earth’s outer core is liquid? Be specific.