

1. (1.5 points) Jupiter is composed of a dense spherical core (of liquid metallic hydrogen!) of radius  $R_c$ . It is surrounded by a spherical cloud of gaseous hydrogen of radius  $R_g$ , where  $R_g > R_c$ . Let's assume that the core is of uniform density  $\rho_c$  and the gaseous cloud is also of uniform density  $\rho_g$ . What is the gravitational force on an object of mass  $m$  that is located at a radius  $r$  from the center of Jupiter? Note that you must consider the cases where the object is inside the core, within the gas layer, and outside of the planet.
2. (1 point) Boas 2.4.8 (Note that you must include a plot and label the point 5 ways)
3. (1 point) Boas 2.4.12 (Note that you must include a plot and label the point 5 ways)
4. (0.5 point) Boas 2.5.15
5. (1 point) Boas 2.9.18
6. (1 point) Boas 2.11.14
7. (1 point) Boas 2.12.7
8. (1 point) Boas 2.12.23
9. (1 point) Taylor 2.46 a and b
10. (1 point) Taylor 2.49a