

## Homework 2, due 9-9

1. Use the relation  $R = 1.2A^{1/3}$  fm between the nuclear radius and the nuclear mass number to compute the nuclear density in  $kg/m^3$ . From this, evaluate the radius of a neutron star with a mass equal to the mass of the sun,  $m = 2 \cdot 10^{30}$  kg.
2. An electron is moving in a circular orbit. Show that the classical magnetic moment generated by the orbital motion is

$$\mu = -\frac{e\hbar c}{2m_e c} l,$$

where  $L = \hbar l$  is the orbital angular momentum.