Homework 2, due 9-10

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.