

Homework 1

1) (2-points) What is your major/minor ?

When do you plan on graduating?

What do you want to do after graduation ? (eg: grad school ? if so, what subject ? if not, what industry?)

What do you most want to get out of this course ?

2) (5-points) Calculate the local strength of gravity g_{local} in terms of $\alpha, \alpha_G, m_{\text{proton}}$ and m_{electron} .

What is your estimated value in mks units ?

3) Estimate the size of life forms on earth in terms of $\alpha, \alpha_G, m_{\text{proton}}$ and m_{electron} . Assume life is a solid.

4) Estimate the Speed of sound in a neutron star. Assume a neutron star is a solid made of neutrons.