ATOMIC SIZE MATH Q's

1) The mass of an electron is 9.1×10^{-28} g. Convert to mg

2) You have 5 of protons. How many protons is that? One proton weighs 1.67×10^{-27} kg

3) The radius of a neutron is 8.4×10^{-16} m. Convert to km

4) What is the equation for density?

5) What is the density of a carbon nucleus in g/mL, if the mass of a C atom is 1.994×10^{-23}g, and the volume of a C atom is 9.9×10^{-39}mL?

6) Looking at your answer to Q5 – was Rutherford right in thinking the nucleus was very small but very dense?

7) The radius of a carbon atom is 7×10^{-11} m and the mass is 1.994×10^{-23}g. What is the density of the carbon atom?*Remember that volume of a sphere is $V = \frac{4}{3}\pi r^3$

8) Comparing your answer to Q5 and Q7, summarize what Rutherford discovered with his gold foil experiment. Use your numerical answers as evidence to support his theory of the structure of the atom. Use full sentences!