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 x 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 x 10-23g, and the
 volume of a C atom is
 9.9 x 10-39mL?

**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 x 10-11 m and
 the mass is 1.994 x 10-23g.
 What is the density of the
 carbon atom?\*Remember
 that volume of a sphere is $ V= \frac{4}{3}πr^{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!

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