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

**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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