Chem 1 Hour\_\_\_\_\_ Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  
Wexler/Steinhorst  
Moles and Molar Mass Worksheet 4  
Date assigned\_\_\_\_\_

Answer the following questions. Show all calculations where relevant. Follow the rule for scientific notation in which the value must be expressed with the decimal after the first digit (3.4 x 106, **not** 34 x 105)

**Part 1: Moles and Avogadro’s number**

1. How many atoms are in one mole of calcium? (hint: Avogadro’s number)

2. How many atoms are in two moles of selenium? (hint: multiply Avogadro’s number x the number of moles)

3. How many atoms are in four moles of titanium?

4. How many atoms are in 30 moles of carbon?

5. How many atoms are 1000 moles of helium?

6. How many moles of silicon do you have if you are given 6.02 x 1024 atoms? (hint: divide the number of atoms by Avogadro’s number)

7. How many moles of boron do you have if you are given 1.204 x 1026 atoms?

**Part 2: Molar Mass of Elements**

8. What is the molar mass of calcium? (express your answer in g/mol)

9. What is the molar mass of selenium? (express your answer in g/mol)

10. What is the molar mass of titanium? (express your answer in g/mol)

11. What is the molar mass of silicon? (express your answer in g/mol)

**Part 3: Molar Mass of Compounds**

12. What is the molar mass of calcium chloride (CaCl2)? (hint: add up the molar masses of the atoms – one calcium and two chlorines)

13. What is the molar mass of methane (CH4)? (hint: add up the molar masses of the atoms – one carbon and four hydrogens)

**Part 4: Converting between moles and mass**

14. 2 moles of calcium chloride = \_\_\_\_\_\_\_\_\_\_\_\_\_\_ grams? (hint: multiply moles x molar mass of CaCl2)

15. 1000g of calcium chloride = \_\_\_\_\_\_\_\_\_\_\_\_\_ moles? (hint: grams divided by the molar mass of CaCl2)