**Chemistry A Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Period\_\_\_\_\_**

**Da Mole Strikes Again!**

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| **1.     .** | **How many particles are there in one mole?** |
| **2.** | **It is estimated that a sample of matter contains 1.38 X 1025 atoms.   How many moles are present in the sample?** |
| **3.** | **How many moles of barium are present in a sample having a mass of 22.3 grams?** |
| **4.** | **A chemical reaction requires 3.7 moles of boron.  What mass, in grams, of boron must be used in the reaction?** |
| **5.** | **A sample of naturally occurring carbon has a mass of 1.732 grams.  Calculate the number of moles of carbon in this sample.** |
| **6.** | **A chemical reaction results in 57.2 grams of the gas carbon dioxide, CO2.  How many molecules of gas were produced?** |
| **7.** | **Calculate the mass of one billion molecules of oxygen, O2.** |
| **8.** | **Calculate the number of moles in:** |
|  | **a)   25 grams of oxygen, O2** |
|  | **b)  0.27 g of ammonia, NH3** |
| **9.** | **Calculate the mass, in grams, of:** |
|  | **a)  1.24 moles of water, H2O** |
|  | **b)  0.269 moles of amonium chloride, NH4Cl** |
| **10.** | **Calculate the number of molecules in:** |
|  | **a)  3.00 moles of chlorine, Cl2** |
|  | **b)  3.00 moles of any kind of molecule** |
| **11.** | **Calculate the number of atoms in:** |
|  | **a)  3.00 moles of chlorine, Cl2** |
|  | **d)  3.00 moles of ammonium sulphate, (NH4)2SO4** |