

Name \_\_\_\_\_

## Moles Worksheet

The mole is a counting unit for chemists, the same way a baker uses the dozen.

1 dozen = 12 objects

1 mole =  $6.022 \times 10^{23}$  objects (note: this number is called Avogadro's number and it is experimentally measured, so use 4 significant figures).

The numbers of eggs are exact. So is the definition of a dozen. How many significant figures would you use?

1. 24 eggs = \_\_\_\_\_ dozen eggs
2. 5 eggs = \_\_\_\_\_ dozen eggs
3. 900 eggs = \_\_\_\_\_ dozen eggs
4. 15 dozen eggs = \_\_\_\_\_ eggs

Round the answers to the appropriate number of significant figures.

5. 24 atoms of sodium = \_\_\_\_\_ moles of sodium atoms
6. 5 molecules of chlorine gas = \_\_\_\_\_ moles of chlorine molecules
7. 900 atoms of silver = \_\_\_\_\_ moles of silver atoms
8.  $2.89 \times 10^{23}$  molecules of ammonia = \_\_\_\_\_ moles of ammonia molecules
9. 15 moles of arsenic atoms = \_\_\_\_\_ atoms of arsenic
10.  $4.00 \times 10^3$  moles of barium atoms = \_\_\_\_\_ atoms of barium

Name \_\_\_\_\_

## Molar Mass Worksheet

The molar mass of a substance = the mass of one mole of the substance.

One mole of an element = the atomic mass of that element (on the periodic table)

One mole of a compound = the sum of the atomic masses of the atoms present in the compound.

**The units of molar mass are always grams per mole (g/mol).**

Note: "mole" may be abbreviated "mol", but not "m" ("m" means meter).

1. What is the mass of one mole (molar mass) of Ar?
2. What is the mass of one mole (molar mass) of Na?
3. What is the mass of one mole (molar mass) of H<sub>2</sub>O?
4. What is the mass of one mole (molar mass) of NaCl?
5. How many moles are in 3.40 g of Ar?
6. How many moles are in 4.99 g of Na?
7. How many moles are in 22.5 g of H<sub>2</sub>O?
8. How many moles are in 2.00 g of NaCl?
9. What is the mass of one mole of C<sub>2</sub>H<sub>6</sub>O (ethanol)?
10. How many moles are in 25.0 mL of ethanol, C<sub>2</sub>H<sub>5</sub>OH (the density of ethanol is 0.785 g/mL)?