work sheet

1. a. How many atoms does **one mole** of the element Na contain _____

   b. How much does **one atom** of the element weigh _____ amu

   c. How much does **one mole** of the element weigh _____ grams

2. If you have 78.2 grams of the element Na , (8 pts, 4 pts per letter)

a. How many moles do you have ? show work.

b. How many atoms do you have in that many grams ? (show work). ($N_A = 6.022 \times 10^{23}$)

1. a. How many atoms does **one mole** of the element Na contain 6.022×10^{23} atoms

   b. How much does **one atom** of the element weigh 22.99 amu

   c. How much does **one mole** of the element weigh 22.99 grams

2. If you have 78.2 grams of the element Na , (8 pts, 4 pts per letter)

3. How many moles do you have ? show work.

$$78.2 g\ Na \times \frac{1\ mol\ Na}{22.99\ g\ Na} = 3.40\ mol\ Na$$

4. How many atoms do you have in that many grams ? (show work). ($N_A = 6.022 \times 10^{23}$)

$$3.40\ mol\ Na \times \frac{6.022 \times 10^{23}\ atoms}{1\ mol\ Na} = 2.05 \times 10^{24}\ atoms$$

$$\text{or}\quad 78.2 g\ Na \times \frac{1\ mol\ Na}{22.99\ g\ Na} \times \frac{6.022 \times 10^{23}\ atom}{1\ mol\ Na}$$

elements to know symbol + name (spelling error in name ok)

H hydrogen

Li lithium

Na sodium

K potassium

Be beryllium

Mg magnesium

Ca calcium

B boron

Al aluminum

Ga gallium

C carbon

Si silicon

Ge germanium

N nitrogen

P phosphorus

As arsenic

O oxygen

S sulfur

Se selenium

F fluorine

Cl chlorine

Br bromine

Hg mercury

He helium

Ne neon

Ar argon

Kr krypton

Cr chromium

Mn manganese

Fe iron

Ni nickel

Cu copper

Zn zinc

Ag silver

Pt platinum

Au gold