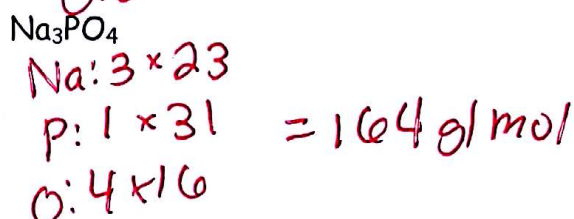
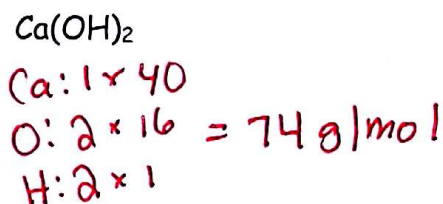
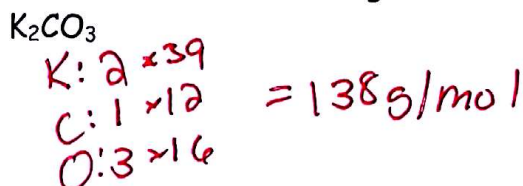
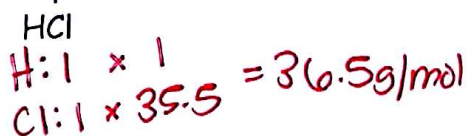


Part 1: Molar Mass

Use the periodic table to find the molar masses of the following.

Part 2: Mole Conversions

Work each of the following problems. SHOW ALL WORK.

1. How many atoms are in 6.2 moles of aluminum?

$$6.2 \text{ moles} \times \frac{6.02 \times 10^{23} \text{ atoms}}{1 \text{ mol}} = 3.6 \times 10^{24} \text{ atoms}$$

2. Convert
- $5.3 \times 10^{25}$
- molecules of
- $\text{CO}_2$
- to moles.

$$5.3 \times 10^{25} \text{ molecules} \times \frac{1 \text{ mole}}{6.02 \times 10^{23} \text{ molecules}} = 88 \text{ moles}$$

3. How many formula units of sodium acetate are in 0.87 moles of sodium acetate?

$$0.87 \text{ mole} \times \frac{6.02 \times 10^{23} \text{ formula units}}{1 \text{ mole}} = 5.2 \times 10^{23} \text{ formula units}$$

4. Convert 3.55 moles
- $\text{NaCl}$
- to formula units.

$$3.55 \text{ mole} \times \frac{6.02 \times 10^{23} \text{ formula units}}{1 \text{ mole}} = 2.14 \times 10^{24} \text{ formula units}$$

5. Convert 3.00 moles  $\text{As}_2\text{S}_3$  to grams.

$$\text{As}_2\text{S}_3 = 75(2) + 32(3) = 246 \text{ g}$$

$$3 \text{ mole} \times \frac{246 \text{ g}}{1 \text{ mol}} = 738 \text{ g}$$

6. How many moles are represented by 11.5 g of  $\text{C}_2\text{H}_5\text{OH}$ ?

$$\text{C}_2\text{H}_5\text{OH} \\ 12(2) + 1(5) + 16 + 1 = 46 \text{ g}$$

$$11.5 \text{ g} \times \frac{1 \text{ mol}}{46 \text{ g}} = 0.25 \text{ mol}$$

7. What is the mass of 9.30 moles of  $\text{SiH}_4$ ?

$$\text{SiH}_4 = 28 + 1(4) = 32 \text{ g}$$

$$9.3 \text{ mol} \times \frac{32 \text{ g}}{1 \text{ mol}} = 298 \text{ g}$$

8. Convert  $8.00 \times 10^{20}$  molecules of  $\text{H}_2$  to moles.

$$8.00 \times 10^{20} \text{ molecules} \times \frac{1 \text{ mol}}{6.02 \times 10^{23} \text{ molecules}} = 0.0013 \text{ mole}$$

9. How many atoms of tin are found in 3.50 moles of tin?

$$3.5 \text{ mole} \times \frac{6.02 \times 10^{23} \text{ atoms}}{1 \text{ mole}} = 2.11 \times 10^{24} \text{ atoms}$$

10. How many grams of tin are found in 3.50 moles of tin?

$$3.50 \text{ mole} \times \frac{119 \text{ g}}{1 \text{ mole}} = 417 \text{ g}$$

Bonus: How many atoms of hydrogen are found in 12.6 moles of water?