

1. Fill in the blanks in the table below (to 1 decimal places)

SUBSTANCE	MOLES	MOLAR MASS	MASS OF SUBSTANCE
Zn	1 mol	65.4g	65.4g
Cu	0.4 mol	63.6g	28g
P	0.1 mol	31.0g	3.1g
O <sub>2</sub>	2 mol	32.0g	64.0g
NH <sub>3</sub>	3.6 mol	17.0g	61.2g
H <sub>3</sub> PO <sub>4</sub>	0.15 mol	98.0	15g

(1/2 a mark each)

2. How many **molecules** of sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) are in 1.6 moles of sulfuric acid?

$$n(\text{H}_2\text{SO}_4) = 1.6 \text{ mol}$$

$$N = n * N_A \quad (1 \text{ mark})$$

$$N = 1.6 * 6.02 * 10^{23} = 9.6 * 10^{23} \text{ molecules} \quad (1 \text{ mark})$$

3. How many **moles** of carbon dioxide are there in 60 g of carbon dioxide gas?

$$m(\text{CO}_2) = 60 \text{ g}$$

$$n(\text{CO}_2) = \frac{m(\text{CO}_2)}{M(\text{CO}_2)} \quad (1 \text{ mark})$$

$$n(\text{CO}_2) = \frac{60 \text{ g}}{12 + 2 * 16} = 1.4 \text{ moles} \quad (1 \text{ mark})$$

4. How many **atoms** are there in 19 g of potassium?

$$m(\text{K}) = 19 \text{ g}$$

$$M(\text{K}) = 39.1 \text{ g}$$

$$n(\text{K}) = \frac{m(\text{K})}{M(\text{K})} \quad (1 \text{ mark})$$

$$n(\text{K}) = \frac{19 \text{ g}}{39.1 \text{ g}} = 0.49 \text{ mol} \quad (1 \text{ mark})$$

Marked by: \_\_\_\_\_

$$N(K) = n * N_A \quad (1 \text{ mark})$$

$$N(K) = 0.49 * 6.02 * 10^{23} = 2.95 * 10^{23} \quad (1 \text{ mark})$$