

# Computing Formula Mass Worksheet

Solve the problems below.

1. Calculate the number of  $\text{CO}_2$  molecules in 3.00 moles.

2. Calculate the number of moles in  $2 \times 10^{24}$  formula units of  $\text{Cu}(\text{NO}_3)_2$ .

3. Calculate the mass in grams of 5.0 moles of Li

4. Calculate the number of moles found in 100 g of  $\text{MgCO}_3$ .

5. Calculate the number of moles found in 148.0 g of  $\text{Ca}(\text{OH})_2$ .

6. Determine the mass in grams of 10.0 molecules of  $\text{C}_6\text{H}_{12}\text{O}_6$

7. How many carbon atoms are in a pencil if the mass of carbon is 2.00 g?

8. How many formula units of  $\text{MgCl}_2$  would have a mass of 345 kg?

# Computing Formula Mass Worksheet

Solve the problems below.

1. Calculate the number of CO<sub>2</sub> molecules in 3.00 moles.

$$3 \text{ mol CO}_2 \times \frac{6.023 \times 10^{23} \text{ molecules CO}_2}{1 \text{ mol CO}_2} = 1.81 \times 10^{24} \text{ molecules CO}_2$$

2. Calculate the number of moles in  $2 \times 10^{24}$  formula units of Cu(NO<sub>3</sub>)<sub>2</sub>.

$$2 \times 10^{24} \text{ form. units Cu(NO}_3)_2 \times \frac{1 \text{ mol Cu(NO}_3)_2}{6.023 \times 10^{23} \text{ molecules Cu(NO}_3)_2} = 3.32 \text{ molecules Cu(NO}_3)_2$$

3. Calculate the mass in grams of 5.0 moles of Li

$$5 \text{ mol Li} \times \frac{6.94 \text{ g Li}}{1 \text{ mol Li}} = 34.7 \text{ g Li}$$

4. Calculate the number of moles found in 100 g of MgCO<sub>3</sub>.

$$100 \text{ g MgCO}_3 \times \frac{1 \text{ mol MgCO}_3}{84.32 \text{ g MgCO}_3} = 1.186 \text{ mol MgCO}_3$$

5. Calculate the number of moles found in 148.0 g of Ca(OH)<sub>2</sub>.

$$148.0 \text{ g Ca(OH)}_2 \times \frac{1 \text{ mol Ca(OH)}_2}{74.1 \text{ g Ca(OH)}_2} = 1.997 \text{ mol Ca(OH)}_2$$

6. Determine the mass in grams of 10.0 molecules of C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>

$$10.0 \text{ molecules of C}_6\text{H}_{12}\text{O}_6 \times \frac{180.18 \text{ g C}_6\text{H}_{12}\text{O}_6}{6.023 \times 10^{23} \text{ molecules C}_6\text{H}_{12}\text{O}_6} = 2.99 \times 10^{-21} \text{ g C}_6\text{H}_{12}\text{O}_6$$

7. How many carbon atoms are in a pencil if the mass of carbon is 2.00 g?

$$2.0 \text{ g C} \times \frac{6.023 \times 10^{23} \text{ atoms C}}{12.1 \text{ g C}} = 1 \times 10^{23} \text{ atoms C}$$

8. How many formula units of MgCl<sub>2</sub> would have a mass of 345 kg?

$$345 \text{ kg MgCl}_2 \times \frac{1000 \text{ g MgCl}_2}{1 \text{ kg MgCl}_2} \times \frac{6.023 \times 10^{23} \text{ form.units MgCl}_2}{95.21 \text{ g MgCl}_2} = 2.18 \times 10^{23} \text{ form.units MgCl}_2$$