



# Chem!stry

Name: ..... ( )

Class: .....

Date: ..... / ..... / .....

## Moles and Molecules Shop – Answers

mass of substance (g) = amount of substance (in moles) × relative molecular mass of substance

1.  $4 \times 64 = \underline{256 \text{ g}}$  of copper.

2.  $2 \times 40 = \underline{80.0 \text{ g}}$  of calcium.

3.  $3 \times 24 = \underline{72.0 \text{ g}}$  of magnesium ions.

**Note:** the mass of the 2 electrons is *negligible*.

4.  $0.5 \times 16 = \underline{8.00 \text{ g}}$  of oxygen atoms.

5.  $0.5 \times (2 \times 16) = \underline{16.0 \text{ g}}$  of oxygen molecules.

6.  $2.5 \times [(2 \times 27) + (3 \times 32) + (12 \times 16)] = \underline{855 \text{ g}}$  of aluminium sulphate.

7.  $15 \times [12 + (2 \times 16)] = \underline{660 \text{ g}}$  of carbon dioxide.

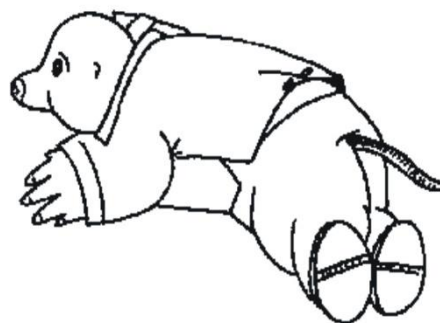
8.  $10 \times [(2 \times 1) + 32 + (4 \times 16)] = \underline{980 \text{ g}}$  of sulphuric acid.

9.  $3 \times [64 + 32 + (4 \times 16) + (5 \times ((2 \times 1) + 16))] = \underline{750 \text{ g}}$  of  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$ .

10.  $4 \times (23 + 35.5) = \underline{234 \text{ g}}$  of sodium chloride.

11.  $0.25 \times [40 + (2 \times (16 + 1))] = \underline{18.5 \text{ g}}$  of calcium hydroxide.

12.  $2 \times [14 + (4 \times 1) + 56 + (2 \times 32) + (8 \times 16) + (12 \times ((2 \times 1) + 16))]$   
 $= \underline{964 \text{ g}}$  of  $\text{NH}_4\text{Fe}(\text{SO}_4)_2 \cdot 12\text{H}_2\text{O}$ .



$$\text{amount of substance (in moles)} = \frac{\text{mass of substance (g)}}{\text{relative molecular mass of substance}}$$

13.  $69.0 \div 207 = \underline{0.330 \text{ mol}}$  of lead.

14.  $14.0 \div 56 = \underline{0.250 \text{ mol}}$  of iron.

15.  $56.0 \div (2 \times 14) = \underline{2.00 \text{ mol}}$  of nitrogen molecules.

16.  $2.01 \div 201 = \underline{0.0100 \text{ mol}}$  of mercury.

17.  $18.0 \div 27 = \underline{0.667 \text{ mol}}$  of aluminium.

18.  $25.0 \div [40 + 12 + (3 \times 16)] = \underline{0.250 \text{ mol}}$  of calcium carbonate.

19.  $740 \div [24 + (2 \times 14) + (6 \times 16)] = \underline{5.00 \text{ mol}}$  of magnesium nitrate.

20.  $57.2 \div [(2 \times 23) + 12 + (3 \times 16) + (10 \times ((2 \times 1) + 16))] = \underline{0.200 \text{ mol}}$  of  $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ .

