

Atomic Mass and Molecular Mass Practice

1. State the full meaning of the following:

a) one atom of Fe

b) one formula unit of CuCl_2

c) 2 atoms of Ca

d) 4 formula units of $\text{Fe}_2(\text{SO}_4)_3$

2. How many atoms of hydrogen are represented in each of the following molecules?

a) 1 atom

b) 2 atoms

c) 8 atoms

d) 4 atoms

e) 8 atoms

f) 10 atoms

3. Asbestos, a known cancer-causing agent, has a typical formula, $\text{Ca}_3\text{Mg}_5(\text{Si}_4\text{O}_{11})_2(\text{OH})_2$. How many atoms of each element are given in the formula?

Ca - 3; Mg - 5; Si - 8; O - 24; H - 2

4. How many atoms of each kind are represented in the following formulas?

a) Na - 3; P - 1; O - 4;

b) Ca - 1; H - 4; P - 2; O - 8;

c) C - 4; H - 10;

d) Fe - 3; As - 2; O - 8;

e) Cu - 1; N - 2; O - 6;

f) Mg - 1; S - 1; O - 11; H - 14;

5. Calculate the molecular mass of and

a) H_3PO_4 $(3 \times 1.008\text{u}) + 30.974\text{u} + (4 \times 15.999\text{u}) = 97.994\text{u}$

b) HClO_4 $1.008\text{u} + 35.453\text{u} + (4 \times 15.999\text{u}) = 100.457\text{u}$

6. Calculate the molecular masses of:

a) SO_2 $32.065\text{u} + (2 \times 15.999\text{u}) = 64.063\text{u}$

b) P_4O_{10} $(4 \times 30.974\text{u}) + (10 \times 15.999\text{u}) = 283.886\text{u}$

c) UF_6 $238.029\text{u} + (6 \times 18.998\text{u}) = 352.017\text{u}$

d) NH_3 $14.007\text{u} + (3 \times 1.008\text{u}) = 17.031\text{u}$

e) CCl_4 $12.011\text{u} + (4 \times 35.453\text{u}) = 153.823\text{u}$