

For this exercise you will need a copy of the periodic table to help you find the atomic masses of each element. This will also help you to become familiar with the position of the elements in the periodic table.

Task 1

Find the mass of each of the following:

- a 5 moles of carbon (C) atoms = _____ g
- b 3 moles of sodium (Na) atoms = _____ g
- c 2.5 moles of magnesium (Mg) atoms = _____ g
- d 6 moles of gold (Au) atoms = _____ g
- e 0.8 moles of silicon (Si) atoms = _____ g
- f 0.5 moles of bromine (Br) atoms = _____ g
- g 1.5 moles of phosphorus (P) atoms = _____ g
- h 2 moles of iron (Fe) atoms = _____ g

Task 2

How many moles are there in each of the following?

- a 48 g of magnesium atoms (Mg) _____ moles
- b 80 g of neon atoms (Ne) _____ moles
- c 128 g of copper atoms (Cu) _____ moles
- d 324 g of silver atoms (Ag) _____ moles
- e 14 g of helium atoms (He) _____ moles
- f 3.5 g of lithium atoms (Li) _____ moles
- g 0.2 g of hydrogen atoms (H) _____ moles
- h 100 g of calcium atoms (Ca) _____ moles

Task 3

What is the mass of one mole of the following compounds?

- a carbon dioxide (CO_2) = _____ g
- b methane (CH_4) = _____ g
- c magnesium chloride (MgCl_2) = _____ g
- d silicon dioxide (SiO_2) = _____ g
- e sulfur dioxide (SO_2) = _____ g
- f aluminium oxide (Al_2O_3) = _____ g
- g potassium carbonate (K_2CO_3) = _____ g
- h nitric acid (HNO_3) = _____ g

Task 4

What is the mass of one mole of the following compounds?

- a sulfuric acid (H_2SO_4) = _____ g
- b calcium nitrate ($\text{Ca}(\text{NO}_3)_2$) = _____ g
- c ammonium nitrate (NH_4NO_3) = _____ g
- d calcium hydroxide ($\text{Ca}(\text{OH})_2$) = _____ g
- e aluminium sulfate ($\text{Al}_2(\text{SO}_4)_3$) = _____ g
- f ethane (C_2H_6) = _____ g
- g silver carbonate (Ag_2CO_3) = _____ g
- h lead dioxide (PbO_2) = _____ g



Answers

Task 1

- a) 60 g b) 69 g c) 60 g d) 1 182 g e) 22.4 g f) 40 g g) 46.5 g
h) 112 g

Task 2

- a) 2 b) 4 c) 2 d) 3 e) 3.5 f) 0.5 g) 0.2
h) 2.5

Task 3

- a) 44 g b) 16 g c) 95 g d) 60 g e) 64 g f) 102 g g) 138 g
h) 63 g

Task 4

- a) 98 g b) 164 g c) 80 g d) 74 g e) 342 g f) 30 g g) 276 g
h) 239 g