

# Worksheet 6.2

## The mole and chemical formulae

1 a What is one mole of any substance?

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b What is the empirical formula of a compound?

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c What is the molecular formula of a compound?

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2 In a reaction 2.4 g of magnesium were reacted with oxygen in the air. 4.0 g of magnesium oxide were produced. What is the empirical formula of the product?

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3 Magnetite is an ore of iron which contains 72.4% by mass of iron, the rest being oxygen. What is the empirical formula of magnetite?

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4 The number of moles of a chemical substance can be calculated using the equation:

$$\text{number of moles of substance} = \frac{\text{mass of substance in g}}{\text{relative formula mass of the substance in g}}$$

Use this equation to calculate the number of moles in the following compounds.

a 100 g of NaOH

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b 22 g of CO<sub>2</sub>

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c 5.8 g of KF

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d 30 g of MgSO<sub>4</sub>

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e 6.75 g of CuCl<sub>2</sub>

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