



FORMULAE & EQUATIONS (A)

1 Give the formula of the following substances.

- a potassium carbonate K_2CO_3 (1)
- b magnesium hydroxide $\text{Mg}(\text{OH})_2$ (1)
- c oxygen O_2 (1)
- d aluminium bromide AlBr_3 (1)
- e sodium Na (1)
- f argon Ar (1)
- g iron(III) sulfate $\text{Fe}_2(\text{SO}_4)_3$ (1)
- h phosphorus P_4 (1)
- i copper(I) oxide Cu_2O (1)
- j hydrogen sulfide H_2S (1)

2 In what molar ratio do the following substances react?

- a hydrochloric acid with barium hydroxide $2 : 1$ (1)
- b sulfuric acid with ammonia $1 : 2$ (1)
- c nitric acid with sodium hydrogencarbonate $1 : 1$ (1)

3 Write an ionic equation, including state symbols, for each of the following reactions.

- a reaction of aqueous potassium carbonate with nitric acid
 $2\text{H}^+(\text{aq}) + \text{CO}_3^{2-}(\text{aq}) \rightarrow \text{H}_2\text{O}(\text{l}) + \text{CO}_2(\text{g})$ (2)
- b precipitation of lead(II) bromide when aqueous lead(II) nitrate is mixed with aqueous sodium bromide
 $\text{Pb}^{2+}(\text{aq}) + 2\text{Br}^-(\text{aq}) \rightarrow \text{PbBr}_2(\text{s})$ (2)
- c reaction of aqueous ammonia with sulfuric acid
 $\text{NH}_3(\text{aq}) + \text{H}^+(\text{aq}) \rightarrow \text{NH}_4^+(\text{aq})$ (2)
- d reaction of hydrochloric acid with aqueous potassium hydroxide
 $\text{H}^+(\text{aq}) + \text{OH}^-(\text{aq}) \rightarrow \text{H}_2\text{O}(\text{l})$ (2)