Worksheet 1.42 - Balancing equations

Q142-01: When the following equation is correctly balanced what is the coefficient for O_2?

$$C_4H_{10} + O_2 \longrightarrow CO_2 + H_2O$$

Q142-02: When the following equation is balanced, what is the coefficient for oxygen?

$$\_C_2H_2(g) + \_O_2(g) \longrightarrow \_CO_2(g) + \_H_2O(g)$$

Q142-03: Hydrogen sulphide, H_2S, reacts with oxygen to form sulfur dioxide and water as shown below:

$$2H_2S + \_O_2 \longrightarrow \_SO_2 + \_H_2O$$

What is the whole number coefficient for oxygen when this equation is balanced?

Q142-04: When this equation:

$$wC_4H_9OH + xO_2 \longrightarrow yCO_2 + zH_2O$$

is balanced correctly the coefficient, x, for O_2 is:

Q142-05: The reaction of lead II sulphide with oxygen at high temperature is represented by the unbalanced equation:

$$PbS(s) + O_2(g) \longrightarrow PbO(s) + SO_2(g)$$

What is the sum of the coefficients in the balanced equation?

Q142-06: The oxidation of nitrogen monoxide can be represented by the word equation:

$$\text{nitrogen monoxide} + \text{oxygen} \longrightarrow \text{nitrogen dioxide}$$

Write out the balanced equation.

Q142-07: White phosphorus is manufactured by heating phosphate ore with sand and coke in an electric furnace at 1500ºC. The phosphorus V oxide, initially formed in an inert atmosphere of carbon monoxide, is then reduced by the coke to phosphorus. The first stage in the process may be represented by the *unbalanced* equation:

$$Ca_3(PO_4)_2 + SiO_2 \longrightarrow CaSiO_3 + P_4O_{10}$$

What is the coefficient for silicon dioxide when the equation is correctly balanced?

Q142-08: When the following equation is correctly balanced what is the coefficient for oxygen?

$$C_6H_6 + O_2 \longrightarrow CO_2 + H_2O$$

Q142-09: When the following equation is correctly balanced what is the coefficient for potassium chlorate (V)?

$$KClO_3 \longrightarrow KClO_4 + KCl$$

Q142-10: In the manufacture of antimony, the sulphide ore is roasted in oxygen to produce antimony oxide according to the unbalanced equation:

$$Sb_2S_3 + O_2 \longrightarrow SO_2 + Sb_2O_3$$

What is the coefficient for oxygen when the equation is correctly balanced?

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Q142-11: Write an equation to represent the following reaction:

sodium + oxygen ⟶ sodium oxide

Q142-12: Write a formula equation to represent the following reaction:

sodium carbonate + hydrochloric acid ⟶ sodium chloride + carbon dioxide + water

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Q142-13: Write an equation to represent the following decomposition:

Calcium nitrate ⟶ calcium oxide + nitrogen dioxide + oxygen

Q142-14: Write an equation to represent the following neutralisation:

Calcium hydroxide + hydrochloric acid ⟶ calcium chloride + water

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Q142-15: Write an equation to represent the following synthesis reaction:

Iron + chlorine ⟶ iron III chloride

Q142-16: Write the ionic equation for the reaction between sulfuric acid and sodium hydroxide.

Q142-17: Write an ionic equation for the reaction between silver nitrate and sodium chloride forming a white silver chloride precipitate.

Q142-18: Write an ionic equation to represent the reaction between barium chloride and magnesium sulphate

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Q142-19: Write an ionic equation to represent the reaction between iron (III) sulphate and sodium hydroxide

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Q142-20: Write an ionic equation for the reaction between manganese (IV) oxide and hydrochloric acid.
