

# Worksheet 4.3

## Different types of chemical reaction

**1** Aluminium reacts with iron(III) oxide in a reaction called the thermit reaction. In this reaction, the aluminium displaces the iron. The reaction releases a great deal of energy and produces molten iron liquid.

**a** Write a word equation for this reaction.

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**b** Write the balanced chemical equation for the reaction.

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**c i** Why can this reaction be regarded as a redox reaction?

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**ii** Which substance is being reduced in the reaction?

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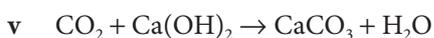
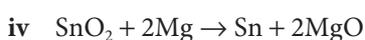
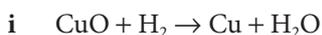
**iii** What is the reducing agent in the reaction?

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**d** The reaction is used to weld the ends of rails together when a railway track is laid. What makes it suitable for this purpose?

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**2** This question concerns the following reactions:



- a Which of these reactions are redox reactions? .....
- b Which reaction is a neutralisation reaction? .....
- c Which reaction involves precipitation? .....

It is often useful to include state symbols in the equation for a reaction.

- d Re-write equations i, ii and v with state symbols included:

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**3** Displacement reactions are also often redox reactions. Write balanced chemical equations for the following reactions.

- a i sodium bromide + chlorine  $\rightarrow$  sodium chloride + bromine

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- ii magnesium + copper sulfate  $\rightarrow$  magnesium sulfate + copper

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- b What is the oxidising agent in reaction i?

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- c What is the reducing agent in reaction ii?

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- d By which definition of oxidation and reduction can both these reactions be regarded as redox reactions?

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- e Write down the ionic equations for both reactions.

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