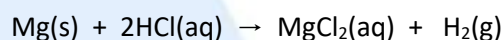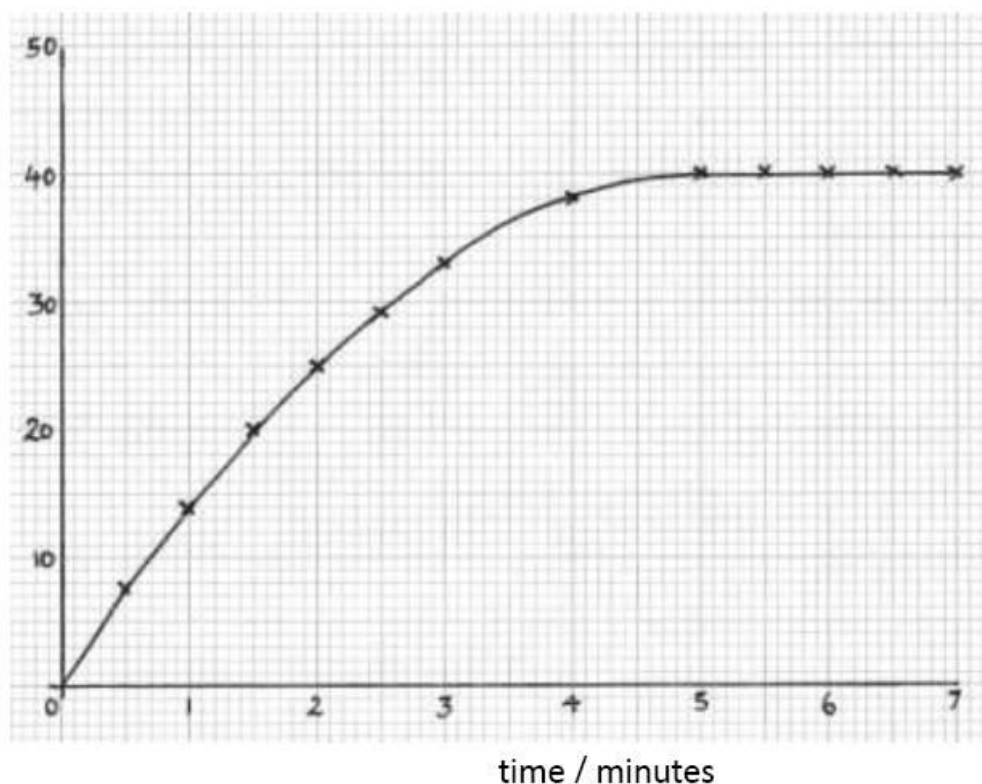# SL & HL Questions on Rate of reaction

1. Define the term *rate of reaction*.

2. Explain why the rate of a chemical reaction generally decreases as the reaction proceeds.

3. The graph below shows the volume of hydrogen evolved against time for the reaction of a piece of solid magnesium metal with 1.00 mol dm^{-3} hydrochloric acid, HCl(aq).

$$Mg(s) + 2HCl(aq) \rightarrow MgCl_2(aq) + H_2(g)$$

volume / cm^3

time / minutes

    i. Deduce the rate of the reaction at time t = 1.5 minutes.

    ii. Assuming magnesium is the limiting reagent and the gas was collected at STP calculate the mass of the piece of magnesium metal used.

    iii. Describe how the graph would have looked if the magnesium metal had been in powdered form.

4. The graph below shows how the concentration of a reactant changes during the course of a chemical reaction.

concentration
/ mol dm^{-3}

time / s
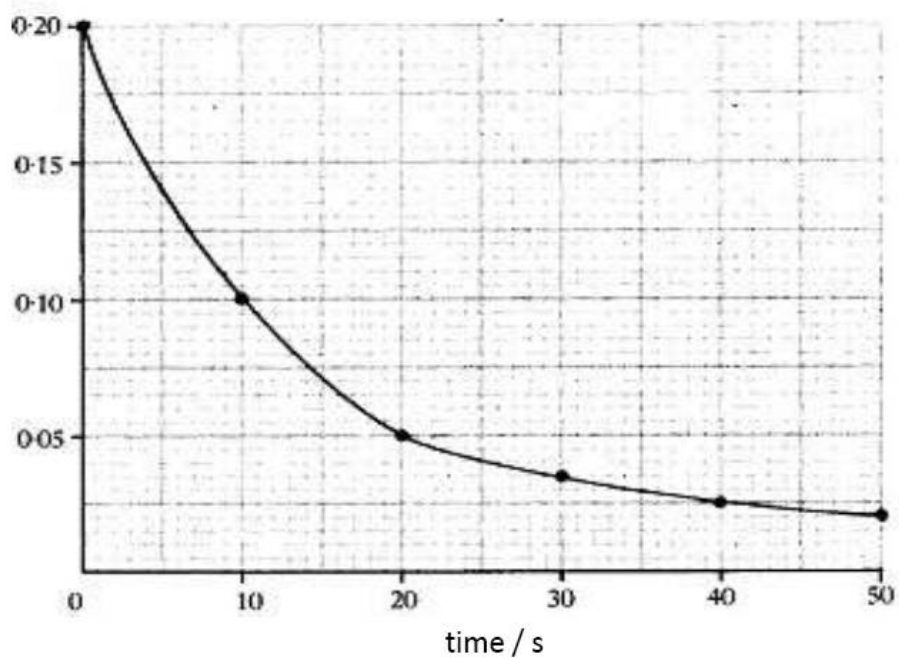
Deduce the initial rate of this reaction.