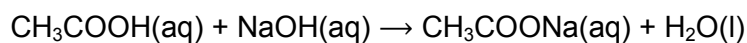


0 3

This question is about enthalpy changes.

0 3 . 1When ethanoic acid reacts with sodium hydroxide, the enthalpy change, ΔH , is $-56.1 \text{ kJ mol}^{-1}$ Calculate the temperature rise when 25 cm^3 of 2.0 mol dm^{-3} aqueous ethanoic acid react with 25 cm^3 of 2.0 mol dm^{-3} aqueous sodium hydroxide.Assume that both solutions have the same initial temperature, have a density of 1.0 g cm^{-3} and a specific heat capacity of $4.18 \text{ J K}^{-1} \text{ g}^{-1}$ **[4 marks]**

Temperature rise _____ °C



0 3 . 2

A student recorded the temperature of aqueous ethanoic acid in a polystyrene cup for three minutes.

At the fourth minute, the student added sodium hydrogencarbonate.

The student stirred the mixture and carried on recording the temperature every minute for several minutes.

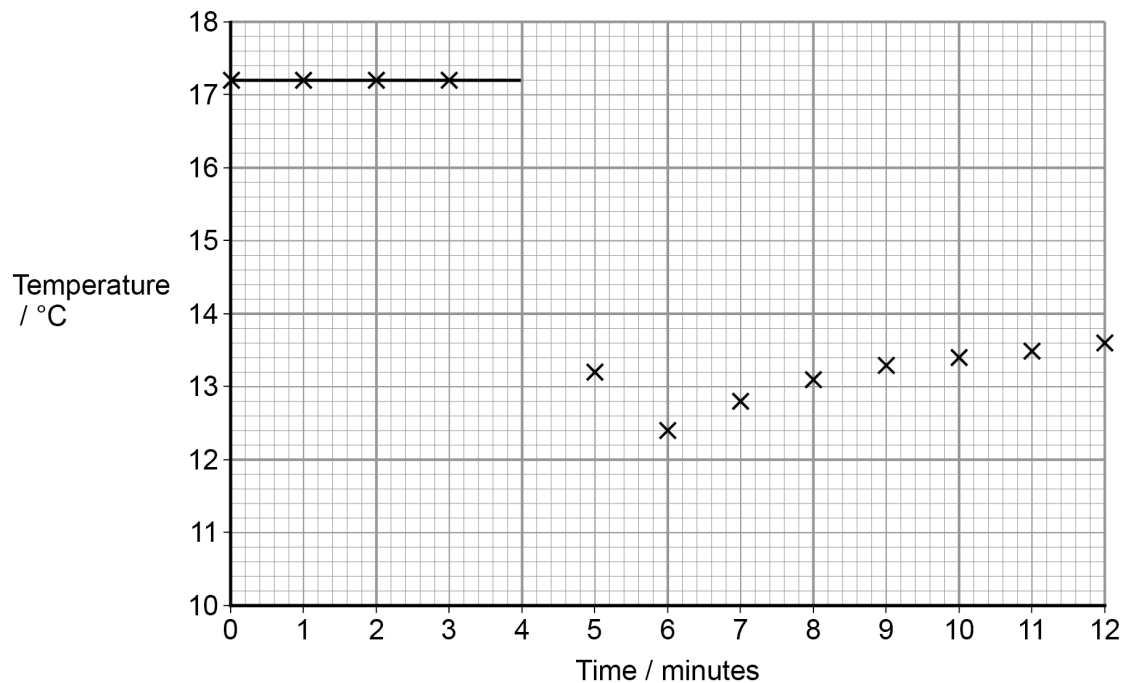
The student's measurements are shown in **Figure 2**.

A best-fit line showing the temperature before mixing has been drawn.

Draw an appropriate best-fit line on **Figure 2** and use it to find the temperature change at the time of mixing.

[2 marks]

Figure 2



Temperature change at time of mixing _____ °C

6

Turn over ►

