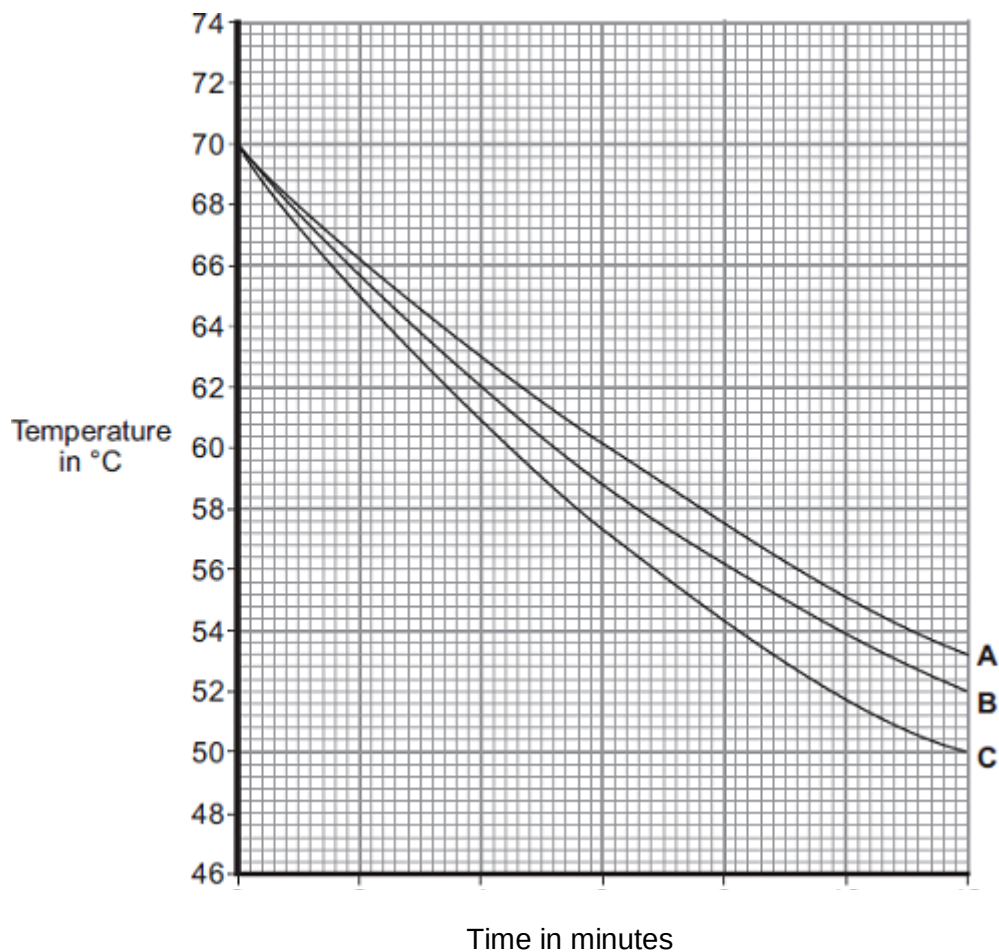


(Total 6 marks)

The diagram shows three cups **A**, **B** and **C**.



- The results are shown on the graph.



- (i) What was the starting temperature of the water for each cup?

Starting temperature = _____ °C

(1)

- (ii) Calculate the temperature fall of the water in cup **B** in the first 9 minutes.

Temperature fall = _____ °C

(2)

- (iii) Which cup, **A**, **B** or **C**, has the greatest rate of cooling?



Using the graph, give a reason for your answer.

(2)

- (iv) The investigation was repeated using the bowl shown in the diagram.

The same starting temperature and volume of water were used.



Draw on the graph in part **(b)** another line to show the expected result.

(1)

- (v) After 4 hours, the temperature of the water in each of the cups and the bowl was 20°C .

Suggest why the temperature does **not** fall below 20°C .

(1)

- (b) (i) The mass of water in each cup is 200 g.

Calculate the energy, in joules, transferred from the water in a cup when the temperature of the water falls by 8°C .

Specific heat capacity of water = $4200 \text{ J / kg}^{\circ}\text{C}$.

Energy transferred = _____ J

(3)

- (ii) Explain, in terms of particles, how evaporation causes the cooling of water.

(4)

(Total 14 marks)