Choosing Where to Read a Warming Sample

Base your answers on the information provided and your knowledge of chemistry. Use the 2025 Chemistry Reference Tables as needed.

A class warms a model liquid in a holder. It wants to stop heating when the liquid reaches 35 °C. One probe measures the holder’s outside surface and another measures the liquid. Both probes have passed the same reference checks.

Elapsed time (min)	Holder reading (°C)	Liquid reading (°C)
2	35	28
4	39	32
6	42	35

1 Which reading supports stopping at six minutes in this model?

(1) The holder reads 35 °C at two minutes.

(2) The liquid reads 32 °C at four minutes.

(3) The liquid reads 35 °C at six minutes.

(4) The holder reads 42 °C at six minutes.

2 If the class stops when the holder first reads 35 °C, what error does it make in estimating the liquid’s temperature? Use the table. [1]

Answer and work

In a second setup the class suspects the liquid near the bottom warms sooner than liquid near the top. It has two matched probes.

3 Describe a test using those probes to check for different temperatures in the liquid. [1]

Answer and work

4 If the class requires both measured locations to reach 35 °C, explain why a reading of 35 °C near the bottom alone cannot confirm that requirement. [1]

Answer and work