A Melting Buffer for a Model Display

Scoring guide · one credit per question · review written work against each rubric

A Melting Buffer for a Model Display

Question 1

Choice (3)

At 12 min the reference is 32 °C and the buffer is 28 °C. At 16 min both are above 30 °C.

Question 2

The solid is melting during the nearly level interval. Energy goes into the change of phase and changes the arrangement and potential energy of particles. Their average kinetic energy stays nearly constant during the plateau.

Question 3

Each sample gains energy at the same rate for the same 8 minutes. For each the gain is (14 − 6) min × 40 J/min = 320 J. The temperature rise in the reference does not show a greater energy gain.

Question 4

Yes. The graph shows about 8 min at the melting temperature. Twice as much material needs twice the energy to melt, so at the same input rate it takes about 16 min, more than the required 12 min.