Tracking Melting and Freezing at Once

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

Tracking Melting and Freezing at Once

Question 1

Two grams of ice melt in P, requiring 2 × 334 = 668 J. Two grams of water freeze in Q, releasing 668 J to the cold plate.

Question 2

Choice (3)

The trays contain 12.0 g of ice both before and after the trial.

Question 3

P melts and takes in 668 J. Q freezes and releases 668 J. Those opposite changes cancel when the trays are combined, even though each plate transfers energy.

Question 4

The warm plate supplies 668 J and the cold plate removes 334 J. The net transfer into the trays is 334 J. It melts one gram of ice on balance without changing the temperature of either mixture.