Specific Heat Calculations Worksheet

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

Specific Heat Calculations

Question 1

Choice (3)

q = (50.0 g)(0.900 J/(g·°C))(10.0 °C) = 450 J.

Question 2

ΔT = 40.0 − 60.0 = −20.0 °C. q = (25.0)(0.400)(−20.0) J = −200 J.

Question 3

Choice (1)

ΔT = q/(mc). A larger c gives a smaller temperature rise for the same heat and mass.

Question 4

ΔT is zero during melting, but energy is absorbed to change phase. The mcΔT term describes a temperature change within a phase.

Heat-Storage Blocks

Question 5

ΔT = q/(mc) = 900. J ÷ [(100. g)(0.600 J/(g·°C))] = 15.0 °C.

Question 6

Choice (4)

Block B warms by 900. ÷ (100. × 0.450) = 20.0 °C, reaching 40.0 °C.

Question 7

Choose A. Its specific heat capacity, 0.900 J/(g·°C), is the highest. With equal masses and heat inputs, it has the smallest temperature increase.

Question 8

Block A requires the most heat. Mass and ΔT are fixed, and A has the largest c, so its q is largest.