Comparing Melt Times at Two Heater Powers

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

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Question 1

Choice (3)

The melting interval starts at 20 s and ends at 100 s in Q.

Question 2

P transfers 20 × (150 − 30) = 2400 J. Q transfers 30 × (100 − 20) = 2400 J.

Question 3

Q transfers energy faster, so it reaches the same 2400 J in less time. A shorter time with a stronger heater does not establish a smaller energy requirement.

Question 4

Twice the mass requires 4800 J during melting. The interval lasts 4800/30 = 160 s.