Tracing Two Paths to the Same Daughter

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

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Question 1

Mass number is 214 − 210 = 4. Atomic number is 84 − 82 = 2. These values describe an alpha particle.

Question 2

Choice (4)

S has no change in mass number. Its daughter atomic number increases by one, so the particle has mass number 0 and atomic number −1.

Question 3

S is the match because the emitted particle has atomic number −1. Both R and S produce lead-210, so knowing the daughter alone does not distinguish them.

Question 4

R has atomic number 84, so it is polonium. S has atomic number 81, so it is thallium.