Following Mass Numbers Through a Decay Chain

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

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Question 1

Choice (2)

A decreases by 4 and Z by 2. An alpha particle has A = 4 and Z = 2.

Question 2

The total emitted mass number is 226 − 218 = 8. The total emitted charge number is 88 − 84 = 4. This matches two alpha particles.

Question 3

For example, the first step would change Z from 88 to 87, a decrease of 1. An alpha particle requires a decrease of 2. The second step would instead decrease Z by 3. Those errors still sum to 4, so the endpoint total cannot reveal them.

Question 4

The atomic number is 222 − 136 = 86. Element 86 is radon.