Separating Photon Counts From Decay Counts

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

Separating Photon Counts From Decay Counts

Question 1

Choice (2)

There are two photon counts per X decay, so 64 counts represent 32 decays.

Question 2

X gives 64/2 = 32 decays and Y gives 32/1 = 32 decays. The different counts reflect photons per decay, not different decay counts in the interval.

Question 3

Each of the 32 decays in either sample gives one grouped event, so the readings match. The second detector counts events instead of individual photons.

Question 4

The 32 events could represent half of 64 starting nuclei or a quarter of 128 starting nuclei. An equal event count does not establish an equal fraction decayed over that interval. At minimum, the starting count of each parent is also needed for a half-life comparison.