Checking Background in a Decay Simulation

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

Checking Background in a Decay Simulation

Question 1

Subtract the constant 20-count background from each. The sample-only counts are 100 − 20 = 80 at zero hours and 60 − 20 = 40 at four hours.

Question 2

Choice (2)

The sample-only counts are 80, 40, 20, and 10. They halve every four hours.

Question 3

The sample contribution halves, but the same background is added before and after. The total includes counts unrelated to the sample, so it changes by less than half.

Question 4

At 12 h the sample-only count is 30 − 20 = 10. At 16 h one more half-life leaves a sample-only count of 5. Adding the background of 20 gives 25 total counts.