Checking a Product Added at the Start

Base your answers on the information provided and your knowledge of chemistry. Use the 2025 Chemistry Reference Tables as needed.

A model reaction converts one A particle into one B particle. Two trials start with ten A particles. P starts with no B. Q starts with two B particles already added. The sensor reports all B particles, including any present before the reaction.

Trial	B count at start	B count at 10 s	B count at the end
P	0	1	10
Q	2	6	12

1 How many B particles does Q form during the first ten seconds?

(1) 2

(2) 4

(3) 6

(4) 12

2 Use both records to compare the early average rates of B formation. [1]

Answer and work

3 A student uses the higher final reading for Q to argue that Q converted more A overall. Evaluate the claim. [1]

Answer and work

The class can start a third trial with two particles of an inert model substance instead of two B particles. Everything else can match Q.

4 State the comparison to make and one result that would support an effect specific to the added B particles. [1]

Answer and work