Comparing Methods for a Dry Mass Test

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

A class compares three methods for estimating the dry mass of a wet mineral sample. It tests a reference that contains 10.0 g of dry mineral plus water. A usable method must finish within 12 minutes and give a reading within 0.2 g of the reference dry mass.

Method	Time (min)	Reported dry mass (g)
A	8	9.9
B	14	10.1
C	9	10.4

1 Which method meets both requirements in this test?

(1) A only

(2) B only

(3) C only

(4) A and B

2 Explain why the reference is useful for comparing two readings that differ from each other. [1]

Answer and work

The class repeats C with matched samples. It weighs one immediately and the other after five minutes in humid air. The delayed sample gives a greater mass.

3 Explain why the higher delayed mass is consistent with water returning to the mineral. [1]

Answer and work

4 Describe a control that would help distinguish the effect of humid air from the effect of waiting itself. [1]

Answer and work