**Comparing Water Loss in Two Salt Removals**

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

An exhibit starts with 2.0 L of solution containing 10 g of dissolved salt. Two model devices remove some salt and some water. Students measure what remains. The goal is to lower salt concentration in the retained solution.

| Device | Salt remaining (g) | Solution volume remaining (L) |
|---|---|---|
| P | 4.0 | 1.0 |
| Q | 4.0 | 0.50 |

**1** Which device leaves the lower salt concentration?

(1) P only

(2) Q only

(3) Both leave the same concentration.

(4) There is no way to compare them.

**2** Explain how Q can remove salt yet leave a higher concentration than the original solution. [1]

Answer and work

The class may add pure water to the retained solution from Q. It wants to match P’s concentration without removing additional salt.

**3** How much water must be added if the solution’s volume increases by the volume of water added? Show how the unchanged salt mass enters your answer. [1]

Answer and work

**4** A student claims that after adding water Q will have removed more salt. Evaluate this claim using the mass record. [1]

Answer and work