Checking a Solution With Water in a Side Trap

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

A sealed display has a solution chamber and a separate water trap. Water vapor can move from the chamber and condense in the trap. The dissolved solute stays in the solution chamber. At the final measurement temperature, the maximum dissolved concentration is 0.16 g of solute per mL of solution in this model.

Record	**Liquid in solution chamber (mL)**	**Water in trap (mL)**	**Total solute in chamber (g)**
Before transfer	50	0	6.0
After transfer	30	20	6.0

1 Which liquid volume determines the dissolved capacity after the transfer?

(1) 20 mL in the trap

(2) 30 mL in the solution chamber

(3) 50 mL across both chambers

(4) 70 mL from adding all readings

2 Calculate how much solute can remain dissolved after the transfer and how much becomes solid. [1]

Answer and work

3 A student says the unchanged total mass of the sealed display proves the solute must remain dissolved. Evaluate the claim with the compartment readings. [1]

Answer and work

The model returns all 20 mL from the trap to the solution chamber at the same temperature. The liquid volumes add.

4 Predict the dissolved and solid amounts after the chamber returns to equilibrium. [1]

Answer and work