Checking Solution Volume With an Air Gap

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

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Question 1

Choice (2)

The 100 mL reading includes 20 mL of air, leaving 80 mL of liquid.

Question 2

P has 0.012/0.100 = 0.12 mol/L. Q has 0.012/0.080 = 0.15 mol/L. Q is more concentrated because its liquid volume is smaller.

Question 3

Add 20 mL of water to bring Q’s actual liquid volume from 80 to 100 mL. With no air gap the barrel reading now tracks the liquid volume. Both then contain 0.012 mol in 0.100 L.

Question 4

Removing the air changes the scale reading but neither the 80 mL liquid volume nor its solute amount. The concentration stays 0.15 mol/L until water is added.