Gas Law Claims and Experimental Controls Worksheet

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

Gas Law Claims and Experimental Controls

Question 1

Choice (2)

The experiment changes temperature and measures volume at constant pressure.

Question 2

Volume can also increase if pressure decreases or the amount of gas increases. More information is needed to isolate the cause.

Question 3

Choice (3)

At fixed pressure and amount, volume is proportional to Kelvin temperature.

Question 4

The combined gas law compares states of a fixed amount of gas. A leak changes how many moles occupy the measured volume.

Comparing Piston Trials

Question 5

Choice (2)

A and C are both at 300 K. Their pressures are 100 and 120 kPa.

Question 6

V(B)/V(A) = 1.40/1.20 = 1.17. T(B)/T(A) = 350/300 = 1.17. The matching ratios agree with the constant-pressure model.

Question 7

A to D changes both temperature, from 300 K to 350 K, and pressure, from 100 kPa to 120 kPa. The comparison includes both effects.

Question 8

Choice (3)

At constant pressure, V_2 = 1.00 L × 360 K/300 K = 1.20 L.