Molar Volume at STP Worksheet

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

Molar Volume at STP

Question 1

Choice (2)

Multiply 0.500 mol by 22.4 L/mol to get 11.2 L.

Question 2

33.6 L ÷ (22.4 L/mol) = 1.50 mol.

Question 3

Choice (2)

The 2025 tables define STP as 273.15 K and 1 atm.

Question 4

Their amounts in moles are the same, but their molar masses differ. A mole of neon has more mass than a mole of helium.

Comparing Gas Samples

Question 5

Choice (1)

All have the standard temperature, and only A and B are at 1.00 atm.

Question 6

A has 11.2 L ÷ (22.4 L/mol) = 0.500 mol. B has 44.8 L ÷ (22.4 L/mol) = 2.00 mol.

Question 7

C has twice A’s pressure at the same volume and temperature. The ideal gas model therefore gives twice as many moles in C.

Question 8

Choice (4)

The pressure is halved at fixed temperature and amount. The volume doubles from 11.2 to 22.4 L.