Answer on Question #49412 - Chemistry – Other

Question

The pressure exerted by a gas is 2.5 atm while it has a volume of 150 cm3. What would be the volume of this sample of gas at standard atmospheric pressure?

Answer:

The combined gas law is:

$$\frac{PV}{T} = \frac{P_1 V_1}{T_1}$$

Assume the temperature is constant in this case, as it isn't mentioned in the task. Therefore:

$$PV = P_1 V_1$$

P_1 – standard atmospheric pressure, P_1 = 1 atm.

The volume of this sample of the gas at standard atmospheric pressure would be:

$$V_1 = \frac{PV}{1} = \frac{2.5 \cdot 150}{1} = 375 \ cm^3$$

Answer: 375 cm^3