



4. What is the volume, in milliliters, of 837 mg of xenon gas at STP?

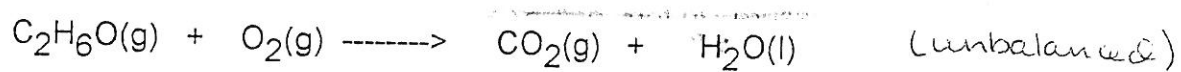
5. If a fixed amount of gas occupies  $2.53 \text{ m}^3$  at a temperature of  $-15^\circ\text{C}$  and 191 torr, what volume will it occupy at  $25^\circ\text{C}$  and 1142 torr?

6. Calculate the pressure, in torr, of  $1.57 \times 10^{-3}$  mol of an ideal gas in a volume of 225 mL at  $17^\circ\text{C}$ .

7. Calculate the molecular mass of a liquid that when vaporized at  $99^{\circ}\text{C}$  and 716 torr gave 225 mL of vapor with a mass of 0.773 g.

8. At what pressure will  $\text{N}_2(\text{g})$  have a density of 0.985 g/L at  $25^{\circ}\text{C}$ ?

9. How many liters of  $\text{O}_2(\text{g})$  measured at  $22^{\circ}\text{C}$  and 763 torr are consumed in the complete combustion of 2.55 L dimethyl ether measured at  $25^{\circ}\text{C}$  and 748 torr?



10. A 267 mL sample of a mixture of noble gases at 25.0°C contains 0.354 g Ar, 0.0521 g Ne, and 0.0049 g Kr. What is the total pressure of the mixture?

11. Oxygen is collected over water at 30.°C and a barometric pressure of 742 torr. What is the partial pressure of the oxygen? At 30.°C,  $P_{H_2O} = 31.8 \text{ mmHg}$

12. At a certain temperature, the ~~root-mean-square speed~~ <sup>rate</sup> of  $\text{CH}_4$  molecules is 1610 km/h. What is the ~~root-mean-square speed~~ <sup>rate</sup> of  $\text{CO}_2$  molecules at the same temperature?