



Gas Laws and Gas Stoichiometry

Independent Practice

5. At STP, what is the volume of 7.08mol of nitrogen gas?

$$159 \text{ L N}_2$$

6. At STP, a sample of neon gas occupies 550.cm³. How many moles of neon gas does this represent?

$$1 \text{ cm} = 1 \text{ mL} \quad 1000 \text{ mL} = 1 \text{ L}$$
$$550 \text{ L} \times \frac{1 \text{ mol}}{22.4 \text{ L}} = 0.0246 \text{ mol Ne}$$

7. What is the mass of 1.33x10⁴mL of oxygen gas at STP?

$$1.33 \text{ L} \times \frac{1 \text{ mol}}{22.4 \text{ L}} = 0.0594 \text{ mol O}_2$$

8. At STP, 3.00L of chlorine is produced during a chemical reaction. What is the mass of this gas?

$$9.50 \text{ g Cl}_2$$

9. Suppose you need 4.22g of chlorine gas, Cl₂. What volume at STP would you need to use?

$$1.33 \text{ L Cl}_2$$