

+WS 5.4 Ideal Gas Law (pg 1)

$$PV=nRT \quad R = 0.0821 \frac{\text{L}\cdot\text{atm}}{\text{mol}\cdot\text{K}}$$

1. What volume would 3.00 moles of neon gas have at 295 K and 645 mmHg?

Ans: _____

2. What volume would 4.3 moles of hydrogen gas occupy at 45°C and 326.2 kPa?

Ans: _____

3. How much pressure would 4.85 moles of He gas exert in a 4.50 L tank at 55°C?

Ans: _____

4. How many moles of CO₂ could fit in a 475 mL bag at -22°C and 855 mmHg?

Ans: _____

5. How many grams of oxygen gas are there in a 2.3 L tank at 7.5 atm and 24°C?

Ans: _____

6. How many molecules of N₂ could fit in a 2.00 L soda bottle at 23°C and 755 mmHg?

Ans: _____

7. What pressure would be needed to fit 35.0 g of N₂ gas into a 195 mL flask at 0°C?

Ans: _____

8. In order to have 1.00 mole of gas fit in a box that measures 1.30 dm x 2.40 dm x 5.83 dm at 1.00 atm, what must the temperature be (in °C)? (1 L = 1 dm³)

Ans: _____

9. A cube-shaped box is to be made that can hold precisely 40.0 grams of He at 1.05 atm and 55°C. How long would the box have to be? (remember it's a cube so take the cube root of the volume)

Ans: _____

10. What volume would be occupied by 16.0 g of CH₄ at 0°C and 760 mmHg?

(notice it's at STP?)

Ans: _____

(continued on next page!)