

Gas Law Practice

Name _____

1. A 2.0 L balloon at 1 atm is placed in a low pressure system where the pressure is reduced to 0.25 atm, what is the final volume?

Gas Law Boyle's

8 L

2. Gas in a balloon occupies 2.5 L at 23°C. The balloon is dipped into liquid nitrogen that is at a temperature of -193°C. What volume will the gas in the balloon occupy at this temperature?

Gas Law Charles

.676 L

3. A sample of a gas has a volume of 134.9 L at a temperature of 23°C. What temperature is necessary to have a volume of 75.0 L?

Gas Law Charles

164.56 K / -108°C

4. A balloon takes up 1.0 L of space at standard temperature. If heated in an oven to 100°C what volume will it occupy?

Gas Law Charles

1.36 L

5. An aerosol can is at STP. It is placed in a Bunsen burner and heated to 700°C, what is the new pressure in the can?

Gas Law Gay Lussac

3.56 atm /
2708.7 torr /
mm Hg

6. Gas in a sealed can is at a pressure of 1250 torr at 25°C. A warning on the can tells the user to store the can in a place where the temperature will not exceed 52°C. What would the pressure of the gas in the can be at this temperature? What is the pressure in atm?

Gas Law

G-L

1363.26 mmHg
or
1.794 atm

7. A 20.0 L balloon at STP is released and rises to an altitude where the pressure is 300 mm Hg and the temperature is -30°C, what is the final volume

Gas Law

(COMBINED)

45.10 L

Ideal Gas Law Problems

$$PV=nRT$$

$$R=0.0821 \text{ atm}\cdot\text{L/mol}\cdot\text{K}$$

8. What is the volume of a 0.5 mole sample of gas at STP?

$V = 11.21 \text{ L}$

9. What is the temperature of a 0.75 mole sample of gas at 800 mmHg that has a volume of 20 L?

$T = 341.70 \text{ K}$

10. How many moles are in a sample of gas that occupies 500 mL at 25°C at a pressure of 650 torr?

$n = .0174 \text{ moles}$