

Gas Laws - Pressure & Volume

Name: _____

- 1) A weather balloon with a volume of 5400 L at 1.0 atm is tested by placing it in a chamber and decreasing external pressure to 0.80 atm. What will be the final volume of the balloon?

Check your answer by checking the relationships:

- A. How are pressure and volume related? (Directly or indirectly) _____
B. Should the volume go up or down when the pressure goes down? _____
C. Does your answer follow that relationship? _____ (If not, re-check your work).

- 2) If initially a gas sample occupies a volume of 8.0 mL and exerts a pressure of 745 mmHg, how would the pressure of the gas sample change if its volume were increased to 10.0 mL?

- A. How are pressure and volume related? (Directly or indirectly) _____
B. Should the pressure go up or down when the volume goes up? _____
C. Does your answer follow that relationship? _____

- 3) If the sample of helium gas has a volume of 6.4 L at a pressure of 7.35 psi, what is the new volume when the pressure is increased to 1.40 atm?

- A. How are pressure and volume related? (Directly or indirectly) _____
B. Should the volume go up or down when the pressure goes up? _____
C. Do the math. Does your answer follow that relationship? _____

- 4) A balloon with a volume of 2.0 L is filled with a gas at 3 atmospheres. If the pressure is reduced to 0.5 atmospheres without a change in temperature, what would be the volume of the balloon?

- A. Should the volume go up or down? _____
B. Do the math. Does your answer follow that relationship? _____

- 5) A balloon contains 7.2 L of He. The pressure is reduced to 2.00 atm and the balloon expands to occupy a volume of 25.1 L. What was the initial pressure exerted on the balloon?

- A. Should the pressure be more or less? _____
B. Do the math. Does your answer follow that relationship? _____

Gas Laws - Pressure & Temperature

Name: _____

***Remember: Temperature has to be measured in Kelvin for the equation to work...

- 1) A gas cylinder (with fixed volume) contains nitrogen at a pressure of 18.0 atm when at 250 K. What will be the nitrogen pressure in the cylinder when the temperature is raised to 310 K?

Check your answer by checking the relationships:

A. How are pressure and temperature related? (Directly or indirectly) _____

B. Should the pressure go up or down when the temperature goes up? _____

C. Does your answer follow that relationship? _____ (If not, re-check your work).

- 2) A sample of gas has a pressure of 0.70 atm at 10 K. What will be the new temperature at constant volume if the pressure is increased to 3.0 atm?

A. How are pressure and temperature related? (Directly or indirectly) _____

B. Should the temperature go up or down when the pressure goes up? _____

C. Does your answer follow that relationship? _____

- 3) If the sample of helium gas has a temperature of 25 °C at a pressure of 1.6 atm, what is the new pressure when the temperature is lowered to -30 °C?

A. How are pressure and temperature related? (Directly or indirectly) _____

B. Should the pressure go up or down when the temperature goes down? _____

C. Is your answer negative? Can pressure be negative? _____

- 4) A fixed volume container with a gas at measures 305 kPa. If the pressure is reduced to 0.5 atmospheres when the temperature goes down to 30 °C, what was the starting temperature?

A. Should the temperature go up or down? _____

B. Does your answer follow that relationship? _____

- 5) An oxygen tank contains gas at 15 atm and 20 °C. The container is slowly heated to a temperature of 120 °C. What is the new pressure of gas in the tank?

A. Should the pressure be more or less? _____

B. Does your answer follow that relationship? _____