

Name: _____
Period: ____

Mixed Gas Laws

Give the name of the gas law required to solve each problem. Solve the equation and give the answer with appropriate units.

- (1) The initial pressure of a gas is 2.0 atm and the initial volume is 150 mL. Determine the final pressure if the final volume is 200 mL.
- (2) The initial temperature of a gas is 27 °C and the initial pressure is 4.00×10^5 Pa. Determine the final temperature if the final pressure is 6.50×10^5 Pa.
- (3) Calculate the volume of 3.4 mol of a gas at STP.
- (4) The initial temperature of a gas is 800 K and the initial volume is 3.00 L. Determine the final volume if the final temperature is 600 K.
- (5) Calculate the volume of 0.750 mol of gas at 4.00 atm of pressure and at 250 K.
- (6) A sample of gas has an initial pressure of 2.0×10^6 Pa and an initial volume of 4.0 L at an initial temperature of 55 °C. Calculate the final pressure if the final volume is 2.0 L and the final temperature is 65 °C.
- (7) Calculate the total pressure of a mixture of neon, argon, and xenon if the neon has a partial pressure of 0.50 atm, the argon has a partial pressure of 0.75 atm, and the xenon has a partial pressure of 0.25 atm.
- (8) Determine the volume if 2.00×10^{24} atoms of krypton gas at STP.
- (9) Determine the pressure (in Pa) if 200 g of water vapour occupies 300 mL at 43 °C.
- (10) Determine the temperature if 6.80×10^{22} molecules of sulphur dioxide gas occupies 0.500 L at 2.00 atm.

Answers:

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|-------------|---------------------------|
| (1) 1.5 atm | (6) 4.2×10^6 Pa |
| (2) 488 K | (7) 1.50 atm |
| (3) 76 L | (8) 74.4 L |
| (4) 2.25 L | (9) 9.72×10^7 Pa |
| (5) 3.85 L | (10) 108 K |