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Chemistry_Questions_0027

8. A study was made of the effect of temperature on the volume of 1.00g (what does the "g" stand for) of helium (He) gas, with the pressure held constant at 1 atm. The data for this experiment were:

T, Celcius -50.0, -10.0, 0.0, 25.0, 50.0, 100.0
V,L 4.58, 5.50, 5.60, 6.12, 6.53, 7.66

- (1) Which property is the independent variable? I answered "the effect of temperature"
- (2) Prepare a graph using these data.
- (3) Is there a direct relationship between the volume and the temperature of He at constant pressure at 1 atm?
- (4) At what volume would the He sample have a temperature of 5 Celcius?
- (5) At what temperature would the He sample have a volume of 4.20 L?
- (6) Calculate the slope of the line.
- (7) Calculate the y-intercept of the line and write the equation for the line.

9. The temperature of a 32.1-g sample of methane (CH₄) gas was held constant at 298 K and its volume was measured under various pressures. Data for this experiment were:

P, atm 0.500 1.00 1.50 2.00 2.50 3.00 3.50
V,L 97.8 48.9 32.6 24.5 19.6 16.3 14.0

- (1) Which property is the dependent variable in this experiment?
- (2) Prepare a graph using these data.
- (3) Is there a direct relationship between the pressure of the gas and its volume indicated from your graph? Briefly explain.

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