Graphing Gas Behavior

Understanding Main Ideas

Table A

Relationship of Temperature and Volume of an Amount of Gas at Constant Pressure	
Temperature (K)	Volume (cm^3)
200	40
250	50
300	60
350	70

Graph A

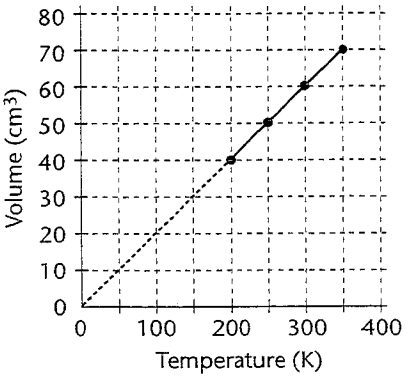
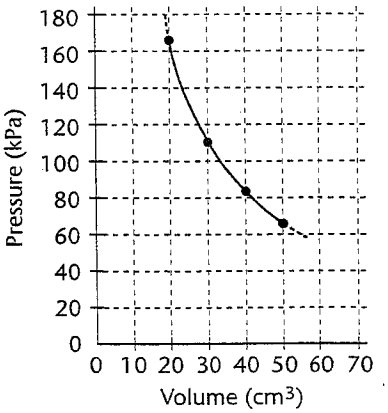


Table B

Relationship of Volume and Pressure of an Amount of Gas at Constant Temperature	
Volume (cm^3)	Pressure (kPa)
20	166.5
30	111.0
40	83.3
50	66.6

Graph B



Use the graphs and tables above to answer the following questions. Write your answers on a separate sheet of paper.

1. Which law is represented in each graph above?
2. Are the variables in the graphs directly proportional or do they vary inversely? How can you tell?
3. Use the graphs to predict the following:
   a. volume of the gas when the temperature is 400 K
   b. pressure of the gas when the volume is 60 cm^3

Building Vocabulary

Answer the following questions on a separate sheet of paper.

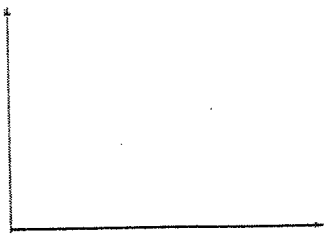
4. What is a graph?
5. Sketch a graph of two variables that vary inversely.
6. Sketch a graph of two variables that are directly proportional.

1. Label the x and y axis on the graph below.
2. Write the words manipulated (independent) variable and responding (dependent) variable on the proper axis.
3. Place a dot on the origin of the graph.

4. When a graph of two variables is a straight line passing through the origin, the variables are said to be _____ to each other.

5. When a graph of two variables forms a curve that slopes downward from left to right, the variables are said to _____ with one another.

6. Sketch a graph of Boyle's Law and label each axis with the proper variables (Volume, Temperature, or Pressure).



7. Sketch a graph of Charles's Law and label each axis with the proper variables (Volume, Temperature, or Pressure).