CHAPTER 3	**Thought Lab 3.1: The Importance of the Kelvin Temperature Scale**	BLM 3.3.3
HANDOUT		

In Investigation 3.B, you collected volume and temperature data and completed the first stage of the analysis of the data. In this Thought Lab, you will use the data table and the graph you constructed to complete your interpretation of the relationship between the temperature of a sample of a gas and its volume.

Procedure

1. Use the following data table to record your data. To fill in columns 1 and 3, copy the data from your data table for Investigation 3.B.

t (ºC)	T (K)	V (mm × A)	$\dfrac{V\,(\text{mm} \times \text{A})}{t\,(°\text{C})}$	$\dfrac{V\,(\text{mm} \times \text{A})}{T\,(\text{K})}$

2. Convert the Celsius temperature data in column 1 to the Kelvin temperature and record the result in column 2.

3. Calculate the quotient of $\dfrac{V}{t}$ and record it in column 4.

4. Calculate the quotient of $\dfrac{V}{T}$ and record it in column 5.

Analysis

1. Describe any trend that you see in the data for quotients of volume to Celsius temperature.

2. Describe any trend that you see in the data for quotients of volume to Kelvin temperature.

3. Propose an explanation for the differences in your descriptions of the trends.

4. What is the *x*-intercept of the extrapolation on the volume versus temperature graph that you completed in Investigation 3.B?

5. What is the significance of your answer to Question 4?

6. In your own words, state the relationship between the volume and temperature of a gas.