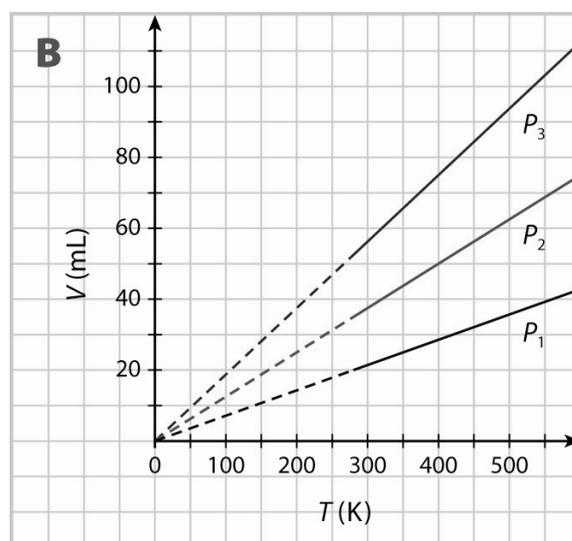
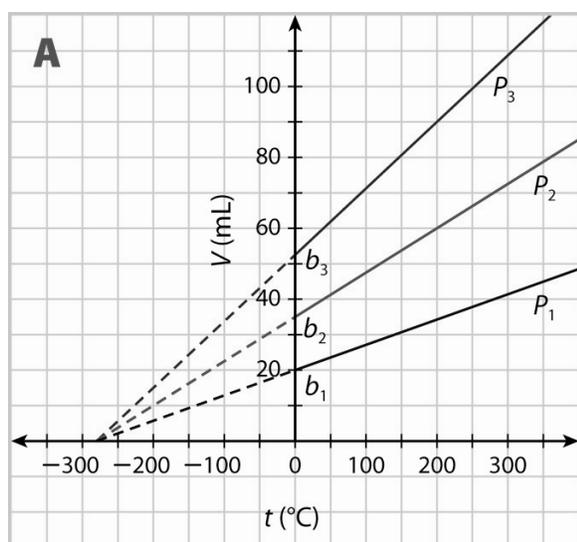


# Thought Lab 3.1: The Importance of the Kelvin Temperature Scale Answer Key

## Answers to Analysis Questions

1. These ratios will show a gradual change over time.
2. These ratios should remain relatively constant throughout.
3. A linear relationship is direct if it has a zero  $x$ -intercept. A direct relationship always has the same constant of proportionality between the variables compared.
4. The  $x$ -intercept should be fairly close to what we know absolute zero to be.
5. Starting at absolute zero is what turns this linear relationship into a direct one.
6. The volume of a gas varies directly with its temperature, as long as the temperature is measured in absolute degrees.



In graph (A), using the Celsius temperature scale, each straight line has a different  $y$ -intercept,  $b_1$ ,  $b_2$ , and  $b_3$ . In graph (B), using the Kelvin temperature scale, the  $y$ -intercept of all the straight lines is zero.