The Combined Gas Law

STP = "Standard Temperature and Pressure"
Standard Temperature = 273 K
Standard Pressure = 1.00 atm = 101.325 kPa = 760 mm Hg = 760 torr
1 mL = 1 cm^3 = 1 cc
Kelvin = Celsius + 273

Please use your head, but show your work in the manner demonstrated by your instructor. Remember to include the correct units and round off to significant digits.

These problems should be done on a separate sheet of paper.

1. Find the original pressure of a gas if its original volume was 32.6 cm^3 at a temperature of 14.0° C but has a volume of 57.1 cm^3 at STP.

2. Find the original volume of a gas now occupying 224 mL at STP if its original pressure was 98.0 kPa at 7.43° C.

3. Find the original temperature of a gas now at STP if its pressure was 765.4 mm of mercury and if the volume changed from 25.2 cm^3 to 634 cm^3.

4. Find the volume a gas would have at STP if it occupied a volume of 456 cm^3 at a pressure of 754 kPa and a temperature of 800° C.

5. Find the pressure a gas would have if it was collected at a pressure of 104 kPa and its temperature was changed from 14.0° C to 97.3° C and its volume changed from 25.4 cm^3 to 936 cm^3.

6. Find the temperature a gas would have if it was collected at 18.6° C and its volume was changed from 963 cm^3 to 461 cm^3 and the pressure changed from 783 kPa to 12.0 kPa.