Combined Gas Law Worksheet

Boyle's Law and Charles' Law can be combined together to make….

THE COMBINED GAS LAW!

$$\frac{P_1V_1}{T_1} = \frac{P_2V_2}{T_2}$$

Use the combined gas law to solve the following problems:

1)   If I initially have a gas at a pressure of 12 atm, a volume of 23 liters, and a temperature of 200 K, and then I raise the pressure to 14 atm and increase the temperature to 300 K, what is the new volume of the gas?

2)   A gas takes up a volume of 17 liters, has a pressure of 2.3 atm, and a temperature of 299 K. If I raise the temperature to 350 K and lower the pressure to 1.5 atm, what is the new volume of the gas?

3)   A gas that has a volume of 28 liters, a temperature of 45 ^{0}C, and an unknown pressure has its volume increased to 34 liters and its temperature decreased to 35 ^{0}C. If I measure the pressure after the change to be 2.0 atm, what was the original pressure of the gas?

4)   A gas has a temperature of 14 ^{0}C, and a volume of 4.5 liters. If the temperature is raised to 29 ^{0}C and the pressure is not changed, what is the new volume of the gas?

5)   If I have 17 liters of gas at a temperature of 67 ^{0}C and a pressure of 88.89 atm, what will be the pressure of the gas if I raise the temperature to 94 ^{0}C and decrease the volume to 12 liters?