**Solve the following Gas Law problems. Be sure to watch your units and convert to Kelvins.**

**Boyle’s Law**

1. **5.6 liters of gas are in a piston at a pressure of 1.5 atm. The piston is compressed until the volume of gas is 4.8 L. What is the new pressure inside of the piston?**
2. **A bag of potato chips is packaged at sea level (1.00 atm) and has a volume of 315 mL. If this bag of chips is transported to Denver (0.775 atm), what will the new volume of the bag be?**

**Charles’ Law**

1. **The temperature inside a refrigerator is about 40 Celsius. If a balloon has a temperature of 220 C and a volume of 0.5 liters and is placed inside of this refrigerator, what will be the volume of the balloon when it is fully cooled by the refrigerator?**
2. **Calculate the decrease in temperature when 2.00 L of xenon gas at 20.0 °C is compressed to 1.00 L.**

**Guy-Lussac’s Law**

1. **A commercial airliner has an internal pressure of 1.00 atm and temperature of 250o C at takeoff. If the temperature of the airliner drops to 170o C during the flight, what is the new cabin pressure?**
2. **Calculate the final pressure inside a scuba tank after it cools from 1.00 x 103 °C to 25.0 °C. The initial pressure in the tank is 130.0 atm.**

**Combined Gas Law**

1. **A gas is heated from 263.0 K to 298.0 K and the volume is increased from 24.0 liters to 35.0 liters by moving a large piston within a cylinder. If the original pressure was 1.00 atm, what would the final pressure be?**
2. **A small research submarine with a volume of 1.2 x 10 5 L has an internal pressure of 1.0 atm and an internal temperature of 15° C. If the submarine descends to a depth where the pressure is 150 atm and the temperature is 3° C, what will the volume of the gas inside be if the hull of the submarine breaks?**