

## Boyles, Charle's, & Gay Lussac's Law

1.00 atm = 101300 Pa

1.00 atm = 101.3 kPa

1.00 atm = 760mmHg

1.00 atm = 760 torr

1.00 atm = 14.7 psi

1. The temperature inside my refrigerator is about 4 degrees Celcius. If I place a balloon in my fridge that initially has a temperature of 22 degrees Celcius and a volume of 0.5 liters, what will be the volume of the balloon when it is fully cooled by my refrigerator.
2. A gas has a pressure of 0.370 atm at 50.0 degrees Celcius. What is the pressure at standard temperature?
3. I have made a thermometer which measures temperature by the compressing and expanding of gas in a piston. I have measured that at 100 degrees Celcius the volume of the piston is 20 L. What is the temperature outside if the piston has a volume of 15 L? What would be appropriate clothing for the weather?
4. The gas in a 600 mL balloon has a pressure of 1.20 atm. If the temperature remains constant, what will be the pressure of the gas in the balloon when it is compressed to 400 mL?
5. Calculate the final pressure inside a scuba tank after it cools from 1000 degrees Celcius to 25 degrees Celcius. The initial pressure in the tank is 130.0 atm.
6. An air compressor has a volume of 110 L. What volume of gas is pumped into the tank if the pressure goes from .986 atm to a pressure of 145 psi.