1. State Charles´ Law. Volume is directly proportional to temperature.

2. Write the formula for Gay-Lussac´s Law and name the 2 variables that must be constant. P1/T1=P2/T2

3. Draw the graph of Boyle-Marriotte´s Law.



4. If the volume of a balloon is doubled then what will happen to its pressure? (at constant T and n) It will half because there is twice as much space and the pressure is due to the collisions of the particles against the walls of the balloon.

5. Eugenio had a metal box with an initial temperature of 10 oC and a pressure of 5 atm. He then heated it to 60 oC. What was the final pressure? (*Hint: what units should T be in?)*

*T1= 10+273=283 K*

*P1= 5 atm*

*T2= 60+273= 333 K*

.Gay-Lussac P2=P1T2/T1 *P2=*5.88 atm

6. María put 64 g of oxygen gas (O2 ) into an empty 20 L container at 37 ° C. What is the pressure in her container? (*Help: The molecular mass of O2 is 32 g/mol)*

*PV= nRT; PV=(mass/molec mass)RT;*

*T=37+273= 310 K*

*P = (64/32)x 0.082 x 310 =* 2.54 atm

7. A 127 º C and 3000 torr, David´s gas occupies 2 m3. What volume will the same gas occupy if the temperature changes to 227 ° C and a pressure at 500 torr?

T1 = 127+273=400 K T2 = 227+273=500 K

P1 = 3000 torr = 3.95 atm P2= 500 torr =0,66 atm

V1= 2 m3 V2= ?

P1 V1/ T1 = P2 V2/ T2 V2=3.95 x 2 x 500/400 x 0.66 = 15 m3

8. After his birthday party, Manolo put his balloon in the fridge. 5 minutes later, he noticed the balloon had shrunk. Explain why? Which gas law does it relate to? Charles´s Law. Decreasing T 🡪 decreasing V.

9. Mr Canning took the following apparatus and placed the end of the glass tube into a beaker of water. He then started to warm up the end of the flask with his hands. What might you have observed when he did this? Explain why? What would happen if he then cooled the glass flask? Bubbles would be produced as increasing T 🡪 increasing V so gas would be forced out of glass tube. When cooling, the opposite is true 🡪 water would be drawn up the tube.

10. We make 2 assumptions when dealing with Ideal Gases. State the 2 assumptions and explain why they are most valid at high temperatures and low pressure? 1. Particles have no volume. 2. There are no intermolecular forces between particles. High T and low P are most valid as particles will have more space and velocity and will therefore avoid any intermolecular forces.