

# STUDY GAS LAW WORKSHEET - 1

1. A gas is allowed to expand at a constant temperature from an initial volume of 300ml to find a final volume of 1800ml. at the end of the expansion the pressure of the gas was found to be 1 atm. What was the initial pressure of the gas?
2. A certain mass of chlorine gas occupies 750 cm<sup>3</sup> at a certain pressure. When the pressure was changed to 2.5 atmospheres, it occupied 1500 cm<sup>3</sup>. What was the initial pressure if the temperature was kept constant during the complete operation?
3. A certain volume of gas was found to be at a pressure of 1200 mm of mercury. When the pressure was decreased by 500 mm the gas occupied a volume of 2400 cm<sup>3</sup>. Calculate the initial volume occupied by the gas if the change was done at a constant temperature?
4. A given mass of gas occupies a volume of 200 ml at 37°C. To what temperature must the gas be heated to make its final volume as 500 ml, assume that the pressure of the gas remains constant?
5. A certain volume of the gas is kept at 77°C. When the temperature is decreased by 20°C the gas occupies a volume of 900 ml. what was the initial volume of the gas? [pressure constant]
6. 450 ml of oxygen gas is collected at 27°C. If for a particular use, the volume has to be reduced to 1/3rd of its original volume, find the temperature to which the gas has to be cooled? [pressure constant]
7. A gas occupies 700ml at S.T.P. Find the volume occupied by the gas when its pressure is 400 mm Hg and its temperature 15°C.
8. A round bottom flask contains 200ml of the gas at 27°C and 70 cm of Hg. Find the final pressure when it is transferred in a conical flask of 75 ml. capacity at a temperature of 57°C.
9. A gas is collected at a pressure of 95 cm of Hg and a temperature of 50°C to what temperature should it be cooled so that it occupies a volume which is 80% of its original volume when the pressure of the gas is 90 cm of Hg.
10. A gas X at a pressure of 750 mm. of Hg and temperature of 38°C has a volume of 2.27 liters. Find the volume of the gas X at S.T.P.
11. A gas X at 15°C is heated until its pressure doubles and volume triples from the original pressure and volume. If the original volume is 1000cc., calculate the temperature to which it should be heated.
12. Calculate the final volume of a gas, if the pressure of the gas, originally at s.t.p is doubled and its temperature is tripled.