**HomeWork 13**

**Due Monday 11/2/15**

**Your name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_/**

**1. A piston initially at 5 atm and volume V1 is expanded to**

 **occupy a final volume of 10 liters at 2.5 atm. What is V1?**

 **P1/P2= V2/V1**

 **5/2.5= 10/V1 \_5\_\_\_\_\_=V1(L)**

 **V1=10/2=5 L**

**2. A balloon initially occupies a volume of 6 liters at a**

 **temperature of 600 K. What temperature T2 is the balloon**

 **at if the volume falls to 1 liter ?**

 **T2/T1 = V2/V1**

 **T2/600 = 1/6 T2 = 600/6=100 K**

 **\_100\_\_\_ =T2(K)**

**3) A pressure cooker starts at 300 K and a initial pressure P1.**

 **It is heated to a final temperature of 900 K where the final**

 **pressure P2 reaches 12 atm. What was P1 ?**

 **P2/P1 = T2/T1**

 **12/P1 = 900/300=3**

 **12/3=P1=4 atm**

 **\_\_\_4\_\_\_=P1(atm)**

**4) A balloon starts at 30,000 feet with a volume V1 of 2 L.**

 **The pressure at this altitude is 0.1 atm at a temperature of**

 **200 K. The balloon is then allowed to descend to sea level**

 **where the temperature is 300 K and the pressure is 1 atm.**

 **What is the balloon’s final volume, V2 ?**

**P1V1/T1=P2V2/T2**

**2\*0.1/200=1\*V2/300**

**300\*2\*0.1/200=V2= 0.3 L**

 **\_0.3\_\_=V2(L)**