

## Gas Problems Set 8

1. 20 ml of gas at 400 K are cooled to 200 K. What will be the new volume of the gas?

10 ml

2. A gas at 760 torr(mmHg) and 200 K is heated to 400 K. What will be the new pressure?

1520 mm Hg

3. 50 ml of gas at a pressure of 2 atm and temperature of 25 C are heated to 50 C and the pressure is allowed to rise to 2.5 atm. What is the new volume?

43.4 ml

4. 250 ml of gas are at 100 C and the pressure is 740 mm Hg. If the gas expands to 500 ml, and the pressure is lowered to 700 mm Hg. what is the new Kelvin temp?

706 K

5. What will be the temperature of 400 g of nitrogen dioxide occupying 4 liters at 1200 mm Hg?

760 mm Hg = 101.3 kPa

8.85 K

6. What mass of sulfur dioxide will be in a 2 liter container at a pressure of 200 kPa and temp. of 200 K?

.241 mol , 15.4 grams

7. What will be the pressure inside a 4 liter container containing 32 grams of CH<sub>4</sub> at 298

K?

1238 KPa

8. What volume of gas at 25 C and 303 KPa can be produced from the reaction of 25 grams of sodium carbonate with hydroiodic acid?

1.93 liters

9. What mass of ammonia (NH<sub>3</sub>) can be produced from the reaction of 5 liters of hydrogen at 20.0 C and 1.2 atm of pressure with excess nitrogen?

2.8 grams