**Videos 13F – Ideal Gas Law Name**



P = pressure in Pa (Absolute, not gauge)

V = volume in m3

n = moles of gas molecules

n = mass/molar mass

careful of: N O F Cl Br I H

R = 8.31 JK-1 (for these units)

T = ABSOLUTE TEMPERATURE (in K)

Example – Nitrogen cylinder is at a (gauge) pressure of 90.1 psi. It has a volume of 378 liters at a temperature of 37.0 oC. What is the mass of Nitrogen in the tank? (N is 14.007 amu) (2967 g = 2.97 kg)

Whiteboards: (These are solved on the website in the videos linked after the main one)

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| 1. What is the volume in liters of 1.00 mol of N2 at 0.00 oC, and 1.00 atm? (1 atm = 1.013 x 105 Pa)(22.4 liters) | 2. We have 34 g of O2 in 18.3 liters @ 23 oC. What pressure? (1.43 x 105 Pa) |
| 3. What is the temperature if 52.0 g of He occupies 212 liters at a pressure of 2.15 x 105 Pa? (422 K, 149 oC) | Draw a picture of a pretty pony here please if you haven’t anything better to do |