10.61 $PV = nRT$

$$P_{He} = \frac{n_{He}RT}{V} = \frac{(0.477)(0.08206)(298)}{7}$$

10.68

$$X_{N_2} = \frac{n_{N_2}\ 0.256}{n_T\ 1.07} = 0.239\ X_{N_2}$$

$$P_{N_2} = X_{N_2} P_T$$

= Part (fraction) of Whole amount

$PV = nRT$

$$P_{N_2} = \frac{(0.256)(0.08206)(298)}{12.4} = 0.488 \text{ atm } N_2$$

Jan 5-7:55 AM

Stoichiometry + Gas Laws

MOLE MATH (FLM)

26°C, 1.15 atm, 36 L N_2

$$2\,NaN_3\,(s) \rightarrow 2\,Na\,(s) + 3\,N_2\,(g)$$

Sodium Azide

3 moles — Mole RATIO

? g

V = 36 L
T = 26 °C
P = 1.15 atm

convert to Moles

$PV = nRT$

$$n = \frac{PV}{RT} = \frac{(1.15)(36)}{(0.08206)(299)}$$

1.69 mole N_2

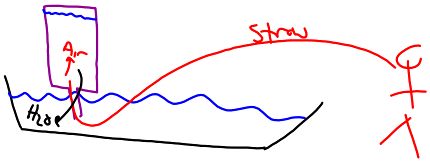
$$\frac{1.69 \text{ mole } N_2}{} \times \frac{2 \text{ mole } NaN_3}{3 \text{ mole } N_2} \times \frac{65 \text{ g } NaN_3}{1 \text{ mole } NaN_3}$$

72 g NaN_3

Jan 5-8:23 AM

¿ How to collect a gas ?

Collect a gas "over" water
under
Volume displacement



End
Bottle has
① Reg air
② water vapor

Pressure of only "Reg air"

$P_{Dry\ Reg\ air} + P_{H_2O\ vapor} = P_{Total}$

constant at a temp.

23°C
$P_T = 760$ atm

⇒ P!!!!

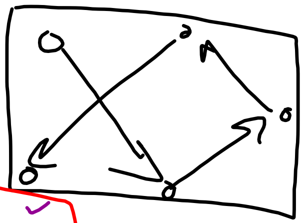
23°C $P_{H_2O} = 21.07$ mmHg (torr)

760 torr
− 21.07 torr
738.93 torr

Jan 5-8:45 AM

KMT - Kinetic Molecular Theory

① Gases move quickly in a random motion
② Fill the entire container
③ IMF → "non existant" no attractive forces
④ Transfer energy → keep going.
⑤ Average KE = Temp !



P, V, T

FAT Guys run slow

Jan 5-9:07 AM

Ideal Gases

Utopic / Nirvana of Gases

¡Best Gas!

Move FAST!

P ① Low Pressure. ∅
V ② Large Volume ∞
T ③ High Temp. ∞
gram ④ No Mass ∅

Not possible BUT comparative ?!

Jan 5-9:18 AM

Diffusion → moves, spreads.

Smaller molecule diffuse quicker

Effusion → escaping through an opening pinhole.

Mean free path - distance between collisions.

Jan 5-9:20 AM

10/54, 58, 75

Jan 5-9:31 AM