10.50 (a) 707 Torr $\frac{707}{760} = 0.9303$ atm

21°C → 294 K

SF_6 Find density = $\frac{\text{mass}}{\text{volume}} = \frac{g}{V}$

$PV = nRT$

$PV = \frac{gRT}{MW}$

$d = \frac{g}{V} = \frac{P(MW)}{RT} = \frac{(0.9303)(146)}{(0.08206)(294)}$

Dec 9-7:39 AM

10. (b) $d = 7.135$ g/L, ~~12°C~~ 285K, 743 torr 0.978 atm

$\frac{RT}{P} * \frac{d}{1} = \frac{P(MW)}{RT} * \frac{RT}{P}$

$\frac{MW}{1} = \frac{dRT}{P} = \frac{(7.135)(0.08206)(285)}{0.978}$

Dec 9-7:57 AM

10/54 $CaH_{2(s)} + 2H_2O_{(l)} \rightarrow Ca(OH)_2 + 2H_{2(g)}$

— g

$2.37 \text{ mole } H_2 \left| \frac{1 \text{ mole } CaH_2}{2 \text{ mole } H_2} \right| \frac{42 \text{ g } CaH_2}{1 \text{ mole } CaH_2} =$

(g) V 53.5 l
P 814 torr = 1.07 atm
T 21°C 294 K

$PV = nRT$

$n = \frac{PV}{RT} = \frac{(1.07)(53.5)}{(0.08206)(294)}$

$n = 2.37 \text{ mole } H_2$

Dec 9-8:03 AM

10.62 10 l 51.2 g O_2 = 1.6 mole O_2 19°C

32.6 g He = 8.15 mole He $\left| \frac{32.6 \text{ g}}{4 \text{ g He}} \right| \frac{1 \text{ mole He}}{}$

Find
P_{O_2}
P_{He}
P_T

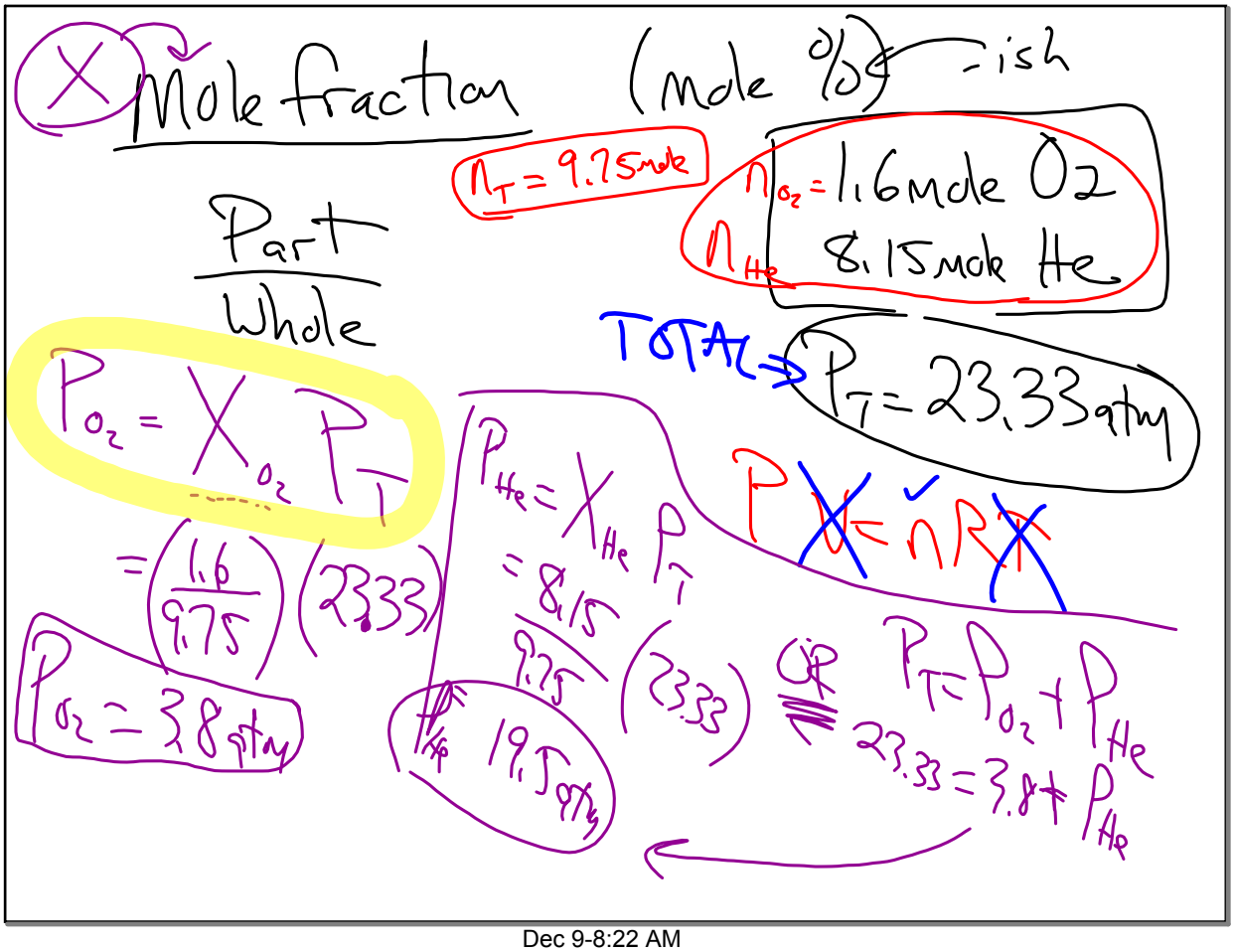
$PV = nRT$

$P_{O_2}(10) = \left(\frac{51.2}{32}\right)(0.08206)(292) = P_{O_2}\ 3.83 \text{ atm}$

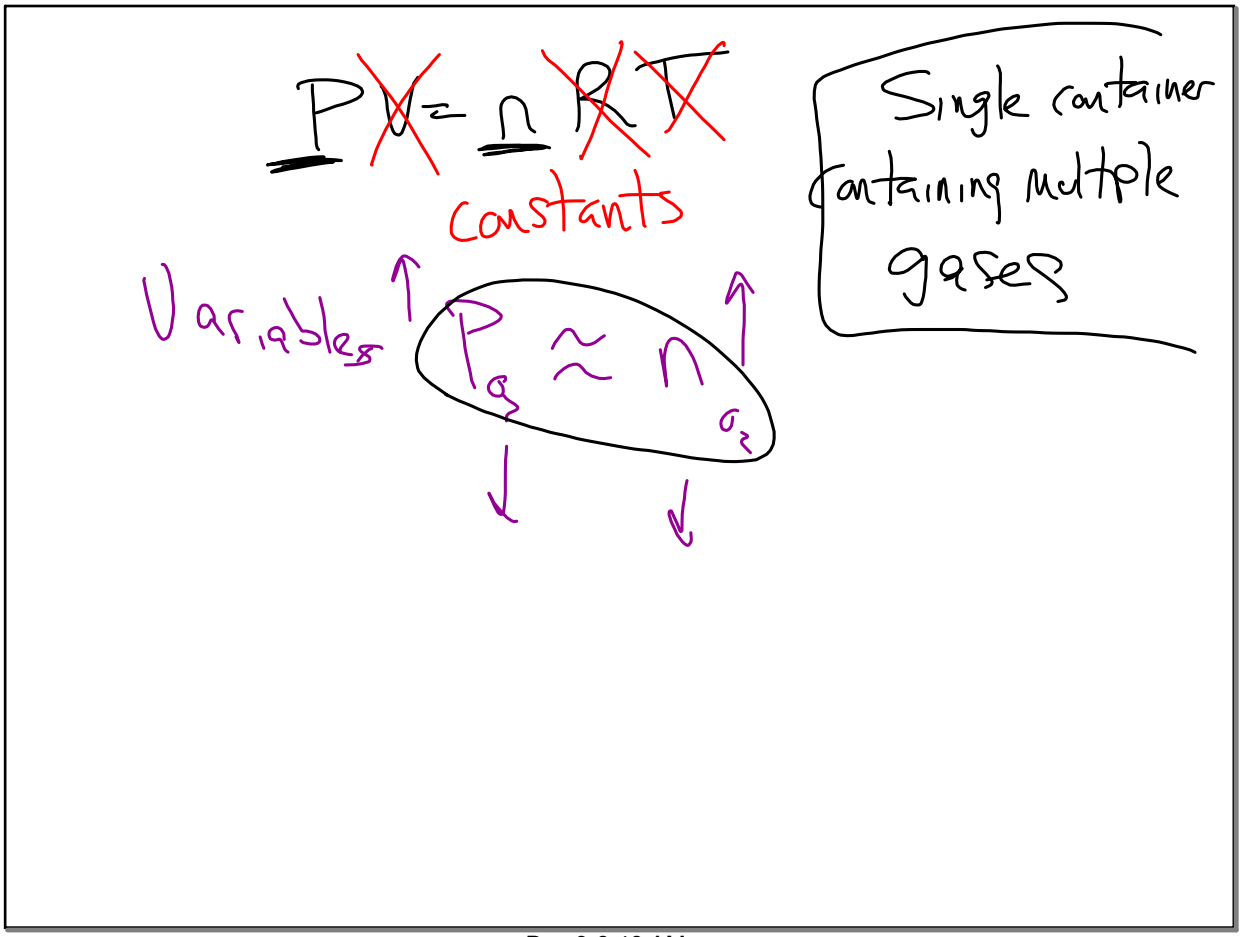
$P_{He}(10) = \left(\frac{32.6}{4}\right)(0.08206)(292) = P_{He}\ 19.5 \text{ atm}$

$P_T = 23.33 \text{ atm}$

Dec 9-8:14 AM



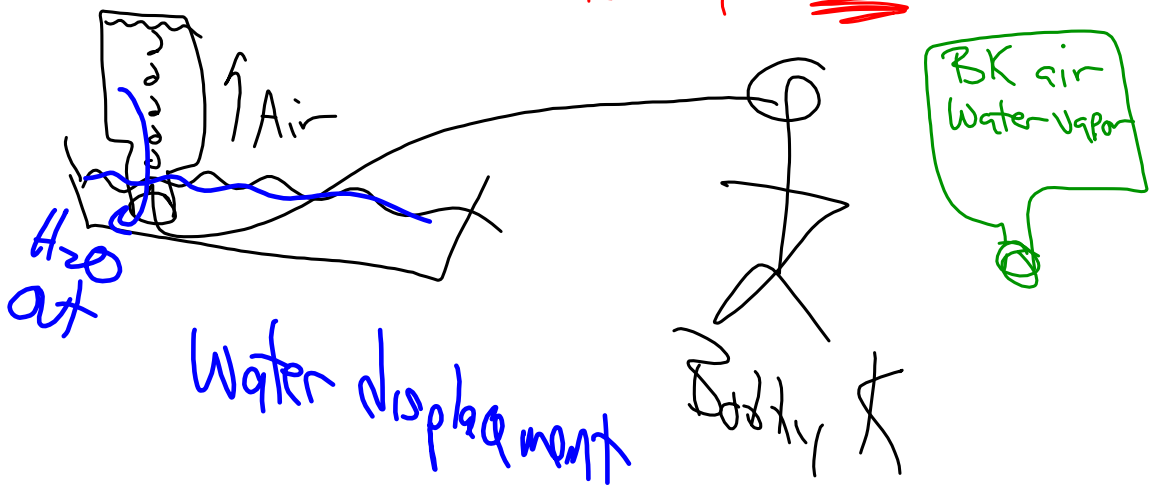
Dec 9-8:22 AM



Dec 9-8:46 AM

Collecting Gases "over water"

Actually under water



Dec 9-8:49 AM

$$P_T = P_{BK\ air} + P_{H_2O\ vapor}$$

P_{1111} → Constant at a certain Temp

$$P_{BK\ "dry"\ air} = P_T - P_{H_2O\ vapor}$$

$= 760 - 21.07$

$= 738.93$ Torr

$T = 23°C$

$P_{H_2O} = 21.07$ Torr

Dec 9-9:03 AM

$KClO_{3(s)} \rightarrow KCl_{(s)} + O_{2(g)}$ (collected over H_2O)

$P_{O_2}V = n_{O_2}RT$

$V = 0.250\ L$

$T = 26^\circ C$

$(0.373)(0.25) = n_{O_2}(0.08206)(299)$

$P = P_T = 765$ torr

Find Moles O_2 collected

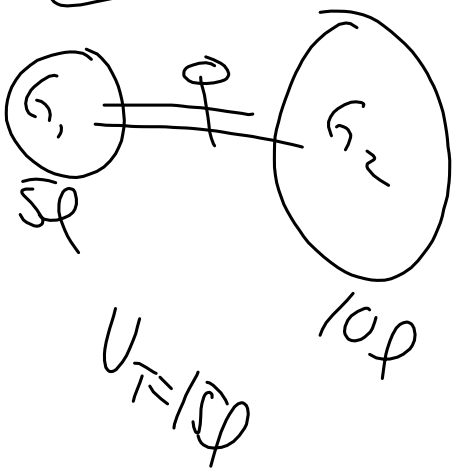
$P_{O_2} = P_T - P_{H_2O}$

$= 765 - 25.21$

$= 739.79$ torr $\rightarrow 0.973$ atm

Dec 9-9:08 AM

10 / 66 + 70



$V_T = SP$

Similar Picture from 10.59 Top page 431

Dec 9-9:15 AM