

Dec 13-7:28 AM

④

P_{N_2} P_{O_2}, V_{O_2}

V_{N_2} n_{N_2} n_{O_2}

25°C N_2 2 atm 250 mL

25°C $O_2(g)$ 4.5 atm 1000 mL

$PV = nRT$ $PV = nRT$

$(2)(0.25) = n(0.08206)(298)$

$n_{N_2} = 0.0204 \text{ mole } N_2$

$PV = nRT$

$4.5(1) = n(0.08206)(298)$

$n_{O_2} = 0.184 \text{ mole } O_2$

Find P_T

$V_T = 1250 \text{ mL}$

$n_T = 0.2044 \text{ moles}$

$P = \frac{nRT}{V}$

$P_T = \frac{(0.2044)(0.08206)(298)}{1.25}$

$P_T = 4 \text{ atm}$

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⑤ 24.2g $P_1 = 4 \text{ atm} \xrightarrow{\times 4} P_2 = ? \quad 16$
 $V_1 = 8 \text{ L} \rightarrow V_2 = 2 \text{ L}$

$P_1 V_1 = P_2 V_2$

$$\frac{(4)(8) = P(2)}{\quad \quad \quad}$$

: 4

Dec 13-7:54 AM

⑨ H_2 (H_2O displ. at 23°C $VP_{\text{H}_2\text{O}} = 21 \text{ torr}$)

$P_{\text{atm}} = 735 \text{ torr}$
 $V = 568 \text{ mL} \rightarrow V = ?$ after H_2O removed

$P_{\text{gas}} = P_{\text{atm}} + VP_{\text{H}_2\text{O}}$
 (dry)
 $= 735 + 21$

$P_{\uparrow} = 756 \text{ torr}$

Settle. dry

$$P_1 V_1 = P_2 V_2$$

$$(756)(568) = 735 (V_2)$$

$V_2 = 584.2 \text{ mL}$

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$$\frac{V_1}{T_1} = \frac{V_2}{T_2}$$

$$V_2 = \frac{V_1 (T_2)}{T_1}$$

② $P_T = P_{He} + P_{Ne} + P_{Ar}$
 $8.4 = 1.5 + 2.0 + P_{Ar}$
 $P_{Ar} = 4.9 \text{ atm}$

$X_{Ar} = \frac{P_{Ar}}{P_T} = \frac{4.9}{8.4}$

Find X_{Ar}

$\frac{P_{Ar}}{P_T}$

Dec 13-8:08 AM

② $P_T = 4 \text{ atm}$
 $n_T = 16 \text{ moles}$

Find n_x (Moles of x)

$P_x = 1.25 \text{ atm}$

$P_T = P_x + P_z$
 $4 = P_x + 2.75$

$P_x = X_x P_T$
 $1.25 = X_x \cdot 4$
 $X_x = 0.3125$

$X_x = \frac{\text{Moles } x}{\text{Total Moles}}$
 $\frac{0.3125}{1} = \frac{\text{Moles } x}{16}$
 $\text{Moles } x = 5 \text{ Moles } x$

Dec 13-8:15 AM

(22)

<u>He</u>		<u>Ne</u>
3L	}	4.5L
5.6 atm		3.6 atm
25°C		25°C

⇒

Find P_T in 9L flask when He + Ne are combined

9L flask

He

$$PV = PV$$

$$(5.6)(3) = P(9)$$

$$P_{He} = 1.8667 \text{ atm}$$

+

Ne

$$PV = PV$$

$$(3.6)(4.5) = P(9)$$

$$P_{Ne} = 1.8$$

=

3.6667 atm

Dec 13-8:22 AM

(23)

$$P_B = X_B P_T$$

$$P_B = \frac{0.56}{(0.56 + 0.32)} (0.95)$$

Dec 13-8:26 AM

24) $2 \text{NaN}_3(s) \rightarrow 2 \text{Na}(s) + 3 \text{N}_2(g)$

— }
~~1.64 mole H_2~~ ~~2 mole Na_2O~~ ~~65 g NaN_3~~

~~3 mole N_2~~ ~~1 mole H_2O~~

71.067 g NaN_3

40 l
 25°C
 763 mmHg

$PV = nRT$

$n = \frac{PV}{RT} = \frac{(1.004)(40)}{(0.08206)(298)}$

$n = 1.64 \text{ mole } \text{N}_2$

Dec 13-8:28 AM

23) NH_3 } 7.5 g H_2O

— l

1 atm
 273 K

$\text{Mg}_3\text{N}_2 + 6\text{H}_2\text{O} \rightarrow 3\text{Mg}(\text{OH})_2 + 2\text{NH}_3$

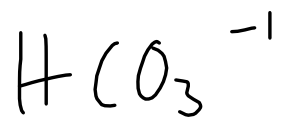
— l

STP

7.5 g H_2O	1 mole H_2O	2 mole NH_3	22.4 l
	18 g H_2O	6 mole H_2O	1 mole

= 3.11 l NH_3

Dec 13-8:32 AM



$$1 + 4 + 3(6) = -1$$

Dec 13-8:44 AM