

Қатысушының шешімдерін толтыруға арналған өріс / Поле для заполнения решений участника Парақ / Страница №

1. $pH = 2,8$

$pH = -\log [H^+]$

~~$H = 4,1$~~

$[H^+] = 10^{-pH} = 10^{-2,8}$

$[H^+] \approx 1,58 \cdot 10^{-3} M$

$K_w = [H^+][OH^-] = 1,0 \cdot 10^{-14}$

$[OH^-] = \frac{K_w}{[H^+]} = \frac{1 \cdot 10^{-14}}{1,58 \cdot 10^{-3}}$

$[OH^-] \approx 6,3 \cdot 10^{-12} M$

2. $50^\circ - 2 \text{ мин } 40 \text{ сек.} - 1600$

$80^\circ - ?$

коэффициент - 2

$(130 \cdot 2 = 260)$
 $(260 - 160 = 100 \text{ с} = 1 \text{ мин } 40 \text{ сек})$

$\frac{v_{T_2}}{v_{T_1}} = \gamma$
 $\frac{T_2 - T_1}{T_1} = 2$
 $\frac{80 - 50}{50} = 2 \cdot \frac{30}{10} = 2 \cdot 3 = 6$

$160 / 8 = 20 \text{ сек.}$

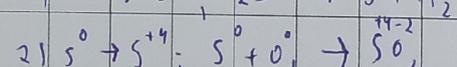
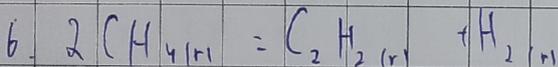
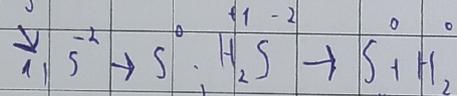
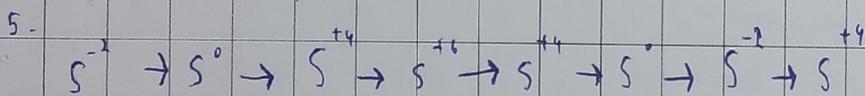
3. Объем - 1,12 л при 0°

Давление - 0,500 атм

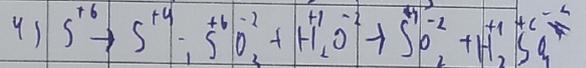
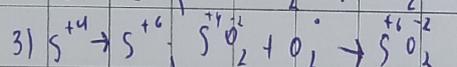
Масса - 0,400 г

Содержит - 25% H и 75% C.

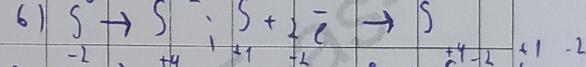
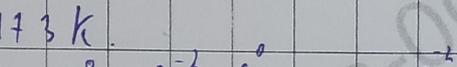
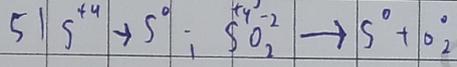
$\frac{0,25 \cdot 12,01}{0,400} = \frac{22,75}{0,400} = 56,875$



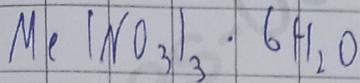
293 K



Промекает и самопроцессит при 1173 K.



7.



мз 1гн → 0,155 гн жсиза

4.

$$d_{\text{аға}} = 2$$

$V_{\text{аға}} = ?$

$$M_{\text{аға}} = 232 \text{ / моль}$$

$$M_{\text{жаспа}} = d_{\text{аға}} \cdot M_{\text{аға}} = 2 \cdot 23 = 58 \text{ г / моль}$$

$$M_{\text{C}_2\text{H}_2} = 12 \cdot 2 + 1 \cdot 2 = 26 \text{ г / моль}$$

$$M_{\text{SO}_2} = 32 + 16 \cdot 2 = 64 \text{ г / моль}$$

$$M_{\text{жаспа}} = n M_{\text{C}_2\text{H}_2} + (1-n) M_{\text{SO}_2}$$

$$58 = n \cdot 26 + (1-n) \cdot 64$$

$$58 = 26n + 64 - 64n$$

$$58 - 64 = 26n - 64n$$

$$-6 = -38n$$

$$n = -6 / -38 = 0,158 \quad (\text{C}_2\text{H}_2 \text{ - ацетилен})$$

$$1 - 0,158 = 0,842 \quad (\text{SO}_2 \text{ - сернистый газ})$$

$$0,158 \cdot 100 = 15,8\% \quad (\text{C}_2\text{H}_2)$$

$$0,842 \cdot 100 = 84,2\% \quad (\text{SO}_2)$$

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$$2. \frac{Q_2}{Q_1} = \gamma \frac{T_2 - T_1}{T_1} = 2 \frac{80 - 50}{50} = 2 \frac{30}{50} = 2^3 = 8$$

$$160 : 8 = 20$$

$$1. pH = -\log(H^+)$$

$$[H^+] = 10^{-pH} = 10^{-2,8}$$

$$[H^+] \approx 1,58 \cdot 10^{-3} \text{ м}$$

$$K_w = [H^+][OH^-] = 1,0 \cdot 10^{-14}$$

$$[OH^-] = \frac{K_w}{[H^+]} = \frac{1 \cdot 10^{-14}}{1,58 \cdot 10^{-3}}$$

$$[OH^-] \approx 6,31 \cdot 10^{-12} \text{ м}$$

$$3. M = \frac{mRT}{pV} \quad R = 0,0821 - \text{универсал газ}$$

$$T = 273 \text{ К}$$

$$M = \frac{(0,4 \cdot 0,0821 \cdot 273)}{0,5 \cdot 1,12} = 16 \text{ г/мол}$$

$$C: \frac{45}{12} = 3,75;$$

$$H: \frac{25}{1} = 25$$

$$\frac{25}{3,75} : \frac{6,25}{3,75} = 4:1;$$

C₄H₄ - метан

4. дайа - ?

$V_{газ} = ?$

$M_{газ} = 29 \text{ г/моль}$

$M_{қоспа} = дайа \cdot M_{газ} = 2 \cdot 29 = 58 \text{ г/моль}$

$M_r(C_2H_2) = 12 \cdot 2 + 1 \cdot 2 = 26 \text{ г/моль}$

(C_2H_2) - ацетилен

$M_r(SO_2) = 32 + 16 \cdot 2 = 64 \text{ г/моль}$

(SO_2) - күкірт диоксиді

$M_{қоспа} = n M_r(C_2H_2) + (1-n) M_r(SO_2)$

$58 = n \cdot 26 + (1-n) \cdot 64$

$58 = 26n + 64 - 64n$

$58 - 64 = 26n - 64n$

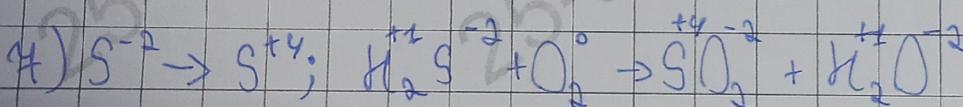
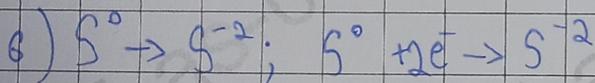
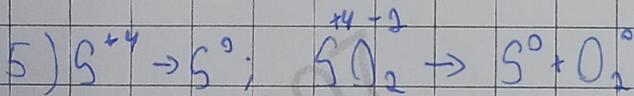
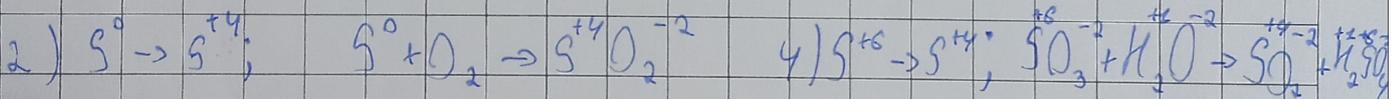
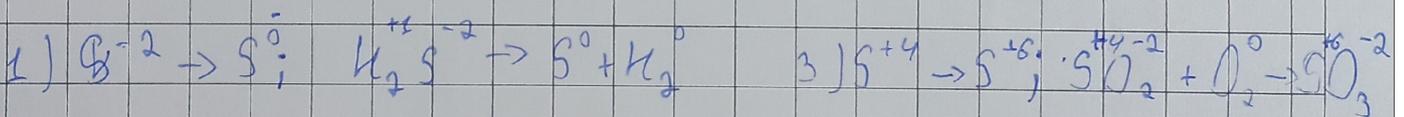
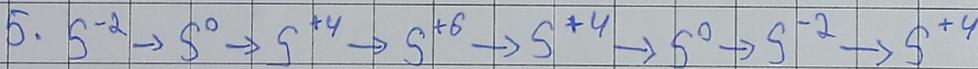
$-6 = -38n$

$n = -6 / -38 = 0,158$

$1 - 0,158 = 0,842$

$0,158 \cdot 100 = 15,8\% (C_2H_2)$

$0,842 \cdot 100 = 84,2\% (SO_2)$



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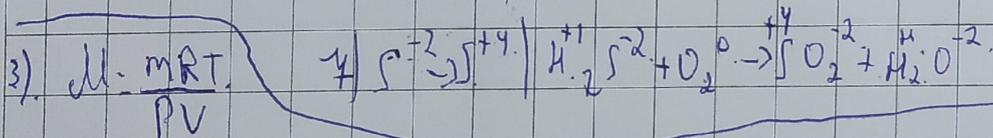
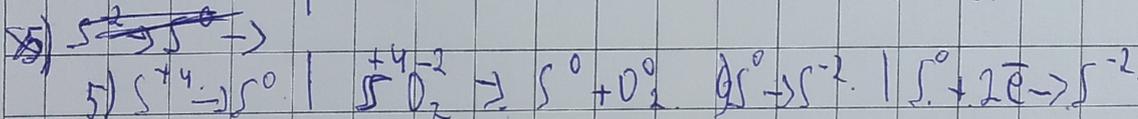
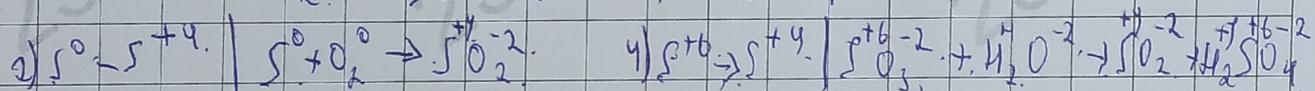
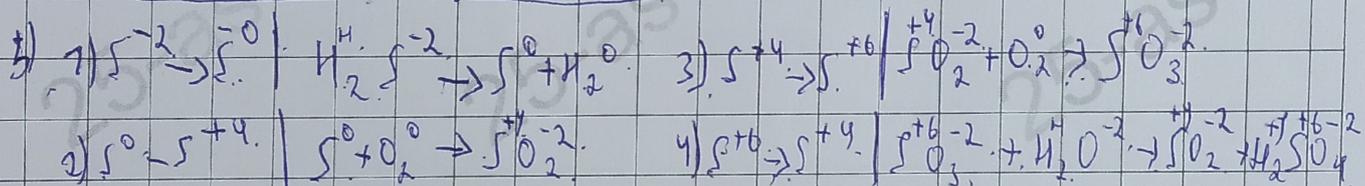
$$1) \text{pH} = -\log(\text{H}^+) \\ [\text{H}^+] = 10^{-\text{pH}} = 10^{-2,8}$$

$$[\text{H}^+] \approx 1,58 \times 10^{-3} \text{ M}$$

$$K_w: [\text{H}^+] [\text{OH}^-] = 1,0 \cdot 10^{-14}$$

$$[\text{OH}^-] = \frac{K_w}{[\text{H}^+]} = \frac{1 \cdot 10^{-14}}{1,58 \cdot 10^{-3}} = [\text{OH}^-] \approx 6,31 \cdot 10^{-12} \text{ M}$$

$$2) \frac{Q_2}{Q_1} = \gamma \frac{T_2 - T_1}{T_0} = 2 \frac{20 - 50}{10} = 2 \cdot \frac{30}{10} = 2^3 = 8 \\ t = 160/8 = 20 \text{ сек}$$



R, 0,0821 - универсальн. газ тұрақтысы

$$T = 273 \text{ K} \quad M = \frac{0,4 \cdot 0,0821 \cdot 273}{0,15 \cdot 1,12} = 16 \text{ г/моль}$$

$$C = \frac{M}{12} = 6,25 \quad n = \frac{25}{1} = 25$$

$$\frac{25}{6,25} = 4 \cdot 1 \quad \text{CH}_4 - \text{метан}$$

Бұл жақтың артқы жағын толтырмаңыз / Обратную сторону листа не заполнять

$$4) \text{Ауа} = 2.$$

$$V_{\text{газ}} = ?$$

$$M_{\text{ауа}} = 29 \text{ г/моль}$$

$$M_{\text{қоспа}} = \text{газ} \cdot M_{\text{ауа}} = 2 \cdot 29 = 58 \text{ г/моль}$$

А. қоспа.

$$M_r(\text{C}_2\text{H}_2) = 12 \cdot 2 + 1 \cdot 2 = 26 \text{ г/моль}$$

$$M_r(\text{SO}_2) = 32 + 16 \cdot 2 = 64 \text{ г/моль}$$

$$M_{\text{қоспа}} = n \cdot M_r(\text{C}_2\text{H}_2) + (1-n) \cdot M_r(\text{SO}_2)$$

$$58 = n \cdot 26 + (1-n) \cdot 64$$

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$$-6 = -38n$$

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$$0,158 \cdot 100 = 15,8\% (\text{C}_2\text{H}_2)$$

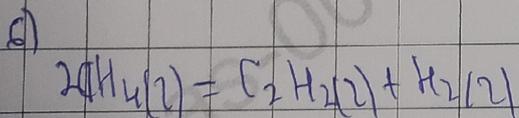
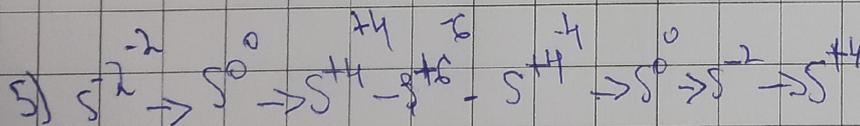
$$0,842 \cdot 100 = 84,2\% (\text{SO}_2)$$

1) $pH = 2.8$
 $H_2O?$

2) $50^\circ - 2 \text{ м}^4 \text{ ос.}$ $\times 30 \text{ м}^3 \text{ ос. то. } 2,0, 1,70, 1,40.$
 $80^\circ - 1 \text{ м}^4 \text{ ос.}$

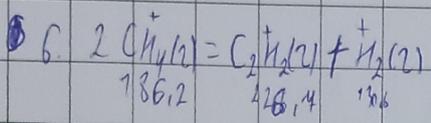
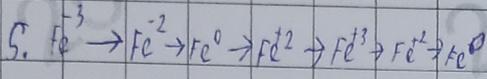
3) $H - 25\%$
 $C - 75\%$

4) $S - 32 \text{ а.м.}$



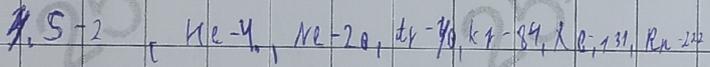
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2. $50^\circ - 2 \text{ мм чосек}$ $80^\circ - 50^\circ = 30$ $160 : 30 = 5,3 \text{ см}$ $80^\circ - 3 \text{ мм}$
 $80^\circ - x$ $2 \text{ мм} = 120 + 40 = 160$ $(5,3 \cdot 30) = 159,9 \approx 160$

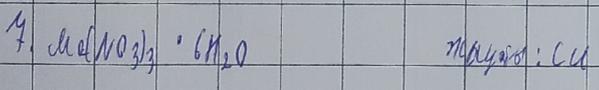


1. $\text{pH} = 2,8$

$\text{H}^+ = 4,2$



3. $\text{M} = 10, \text{N} = 14$



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1) $pH = 2.8$ $pH = -\log [H^+]$

$[H^+] = 10^{-pH} = 10^{-2.8}$

$[H^+] \approx 1.58 \times 10^{-3} M$

$K_w = [H^+][OH^-] = 1.0 \cdot 10^{-14}$

$[OH^-] = \frac{K_w}{[H^+]} = \frac{1 \cdot 10^{-14}}{1.58 \cdot 10^{-3}}$

$[OH^-] \approx 6.31 \cdot 10^{-12} M$

2) $T_1 = 50^\circ$

$t_1 = 2 \text{ мин } 40 \text{ сек} = 160 \text{ сек}$

$T_2 = 80^\circ$

$t_2 = ?$

$5^\circ = 16 \text{ секунд}$

$80^\circ - 50^\circ = 30^\circ$

$30^\circ = 98 \text{ секунд}$

$50^\circ - 160 \text{ сек}$

$80^\circ - X \text{ сек}$

$160 - 98 = 62 \text{ секунд} = 1 \text{ мин } 2 \text{ сек}$

3) $\mu = \frac{nRT}{pV}$

$R = 0.0821$

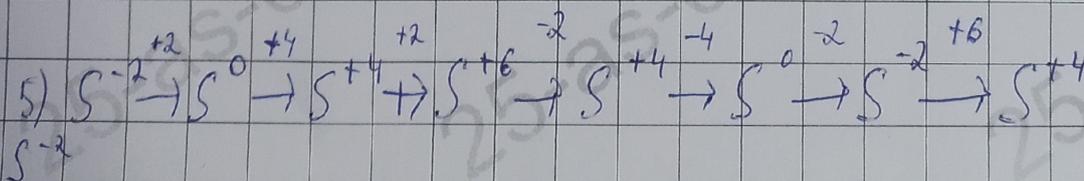
$T = 273 K$

$\mu = \frac{(0.4 \cdot 0.0821 \cdot 273)}{0.5 \cdot 1.12} = 16 \text{ г/моль}$

$C: \frac{75}{12} = 6.25$; $H: \frac{25}{1} = 25$

$\frac{25}{6.25} : \frac{6.25}{6.25} = 4:1$

C_4H_4 - метан



$$4) d_{\text{ауа}} = 2$$

$$V_{\text{газ}} = ?$$

$$M_{\text{ауа}} = 29 \text{ г/моль}$$

$$M_{\text{қоспа}} = d_{\text{ауа}} \cdot M_{\text{ауа}} = 2 \cdot 29 = 58 \text{ г/моль}$$

$$M_r(\text{C}_2\text{H}_2) = 12 \cdot 2 + 1 \cdot 2 = 26 \text{ г/моль}$$

$$M_r(\text{SO}_2) = 32 + 16 \cdot 2 = 64 \text{ г/моль}$$

$$M_{\text{қоспа}} = n M_r(\text{C}_2\text{H}_2) + (1-n) M_r(\text{SO}_2)$$

$$58 = n \cdot 26 + (1-n) \cdot 64$$

$$58 - 64 = 26n - 64n$$

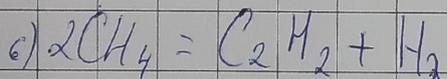
$$-6 = -38n$$

$$n = -6 / -38 = 0,158 \text{ (C}_2\text{H}_2)$$

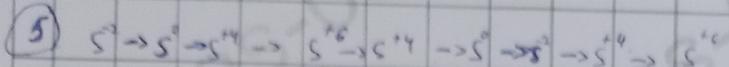
$$1 - 0,158 = 0,842 \text{ (SO}_2)$$

$$0,158 \cdot 100 = 15,8\%$$

$$0,842 \cdot 100 = 84,2\%$$



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1) $pH = \lg [H^+]$

$[H^+] = 10^{-pH} = 10^{-1.4}$

$[H^+] \approx 1,58 \times 10^{-2} M$

$K_w = [H^+][OH^-] = 1,0 \cdot 10^{-14}$

$[OH^-] = \frac{K_w}{[H^+]} = \frac{1 \cdot 10^{-14}}{1,58 \cdot 10^{-2}}$

$[OH^-] \approx 6,31 \cdot 10^{-13} M$

- 1) $S^{-2} \rightarrow S^0; H_2S \rightarrow S^0 + H_2^0$
- 2) $S^0 \rightarrow S^{+4}; S^0 + O_2 \rightarrow SO_2^{+2}$
- 3) $S^{+4} \rightarrow S^{+6}; SO_2^{+2} + O_2^0 \rightarrow SO_3^{+2}$
- 4) $S^{+4} \rightarrow S^{+6}; SO_3^{+2} + H_2O^0 \rightarrow SO_4^{+2} + H_2SO_4^{+2}$
- 5) $S^{+4} \rightarrow S^0; SO_2^{+2} \rightarrow S^0 + O_2$
- 6) $S^0 \rightarrow S^{-2}; S^0 + 2e^- \rightarrow S^{-2}$
- 7) $S^0 \rightarrow S^{+4}; H_2S + O_2 \rightarrow SO_2^{+2} + H_2O^{+2}$

2) $\frac{v_2}{v_1} = \gamma = \frac{T_2 - T_1}{10} = 2 \frac{80 - 50}{10} = 2 \frac{30}{10} = 2^3 = 8 \quad t = 100/8 = 20 \text{ сек}$

3) $M = \frac{mRT}{PV} \quad R = 0,0821 \text{ - универсаль газ тұрақтысы}$

$T = 273 K$

$M = \frac{0,4 \cdot 0,0821 \cdot 273}{0,5 \cdot 1,12} = 162 / \text{мол}$

$C: \frac{75}{12} = 6,25 \quad H: \frac{25}{1} = 25$

$\frac{25}{6,25} = \frac{1,25}{1,25} = 4:1; \quad CH_4 \text{ - метан}$

4) $d \text{ ауа} = 2$

$58 = n \cdot 28 + (1-n) \cdot 32 = 64$

$v_{\text{ауа}} = ?$

$58 = 28n + 64 - 64n$

$M_{\text{ауа}} = 29 \text{ г/мол}$

$58 - 64 = 28n - 64n$

$M_{\text{қоспа}} = d \cdot M_{\text{ауа}} \quad M_{\text{ауа}} = 2 \cdot 29 = 58 \text{ г/мол}$

$-6 = -38n$

$M_r(C_2H_2) = 12 \cdot 2 + 1 \cdot 2 = 26 \text{ г/мол}$

$n = 6 / -38 = 0,158 \text{ (} C_2H_2 \text{- құрамында)}$

$M_r(SO_2) = 32 + 16 \cdot 2 = 64 \text{ г/мол}$

$1 - 0,158 \cdot 100 = 15,8\% (SO_2)$

$M_r \text{ қоспа} = n M_r C_2H_2 + (1-n) M_r SO_2$

$0,158 \cdot 100 = 15,8\% (SO_2)$

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№2

$$50^\circ \rightarrow 2 \text{ мин } 40 \text{ сек} = 160 \text{ сек}$$

$$80^\circ \rightarrow x$$

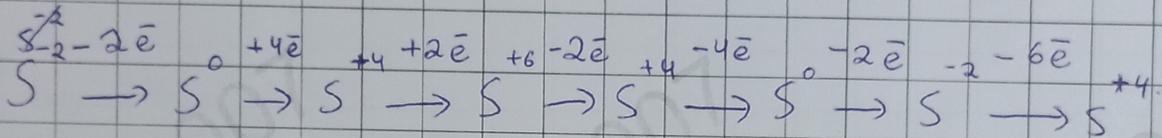
$$\frac{50^\circ}{80^\circ} = \frac{160}{x}$$

$$x = \frac{160 \times 80}{50} = \frac{1280}{5} = 256$$

$$x = 256 \text{ сек} = 4 \text{ мин } 16 \text{ сек.}$$

$$80^\circ \rightarrow 4 \text{ мин } 16 \text{ сек.}$$

№5.



№8 №3

$$\mu = \frac{mRT}{PV}$$

$R = 0,0821$ - универсальное газовое уравнение

$$T = 273 \text{ K}$$

$$\mu = \frac{(0,4 \cdot 0,0821 \cdot 273)}{0,5 \cdot 1,12} = 162 \text{ г/моль}$$

$$C = \frac{75}{12} = 6,25$$

$$H = \frac{25}{1} = 25$$

$$\frac{25}{6,25} = \frac{6,25}{6,25} = 4:1$$

C_4H_{10} - метан.

N1.

$$pH = -\log [H^+]$$

$$[H^+] = 10^{-pH} = 10^{-2,8}$$

$$[H^+] \approx 1,58 \times 10^{-3} \text{ м}$$

$$K_w = [H^+][OH^-] = 10 \cdot 10^{-14}$$

$$[OH^-] = \frac{K_w}{[H^+]} = \frac{1 \cdot 10^{-14}}{1,58 \cdot 10^{-3}}$$

$$[OH^-] \approx 6,31 \cdot 10^{-12} \text{ м}$$

N4.

$$d_{\text{аэра}} = 2$$

$$V_{\text{аэра}} = ? \quad M_{\text{аэра}} = ?$$

$$M_{\text{аэра}} = 29 \text{ г/моль}$$

$$M_{\text{аэра}} = d_{\text{аэра}} \cdot M_{\text{аэра}} = 2 \cdot 29 = 58 \text{ г/моль}$$

$$M_r(C_2H_2) = 12 \cdot 2 + 1 \cdot 2 = 26 \text{ г/моль}$$

$$M_r(SO_2) = 32 + 16 \cdot 2 = 64 \text{ г/моль}$$

$$M_{\text{аэра}} = n M_r(C_2H_2) + (1-n) M_r(SO_2)$$

$$58 = n \cdot 26 + (1-n) \cdot 64$$

$$58 = 26n + 64 - 64n$$

$$58 - 64 = 26n - 64n$$

$$-6 = -38n$$

$$n = -6 / -38 = 0,158 \text{ (C}_2\text{H}_2 \text{ - ацетилен)}$$

$$1 - 0,158 = 0,842 \text{ (SO}_2 \text{ - күмірт диоксиді)}$$

$$0,158 \cdot 100 = 15,8\% \text{ (C}_2\text{H}_2)$$

$$0,842 \cdot 100 = 84,2\% \text{ (SO}_2)$$