

N1

Дано:

$$m_x = 4,2 \text{ г}$$

$$m_{\text{CO}_2} = 13,2 \text{ г}$$

$$D_6 = 2,9$$

$$m_{\text{H}_2\text{O}} = 5,4 \text{ г}$$

Найти:

X - ?

Решение

$$n_{\text{CO}_2} = \frac{13,2 \text{ г}}{44 \text{ г/моль}} = 0,3 \text{ моль} \quad n_{\text{C}} = n_{\text{CO}_2} = 0,3 \text{ моль}$$

$$n_{\text{H}_2\text{O}} = \frac{5,4 \text{ г}}{18 \text{ г/моль}} = 0,3 \text{ моль} \quad n_{\text{H}} = 2 n_{\text{H}_2\text{O}} = 0,6 \text{ моль}$$

В в-ве X:

$$m_{\text{C}} = 0,3 \text{ моль} \cdot 12 \text{ г/моль} = 3,6 \text{ г}$$

$$m_{\text{H}} = 0,6 \text{ моль} \cdot 1 \text{ г/моль} = 0,6 \text{ г}$$

$$m_x = m_{\text{C}} + m_{\text{H}} \quad \checkmark \Rightarrow \text{O} \notin \text{X}$$

$$\frac{N_{\text{C}}}{N_{\text{H}}} = \frac{n_{\text{C}}}{n_{\text{H}}} = \frac{0,3}{0,6} = 1:2 \Rightarrow \text{C}_n \text{H}_{2n}$$

$$\left(\frac{m_x}{M_x} \right) M_x = n \cdot M_{\text{C}} + 2n \cdot M_{\text{H}}$$

$$M_x = 14n$$

$$M_x = D_6 \cdot M_{\text{C}} \quad M_x = 2,9 \cdot 29 = 84,1 \text{ г/моль}$$

$$\begin{cases} M_x = 84,1 \text{ г/моль} \\ M_x = 14n \end{cases} \Rightarrow 14n = 84,1$$

$$n = 6$$

$$\Rightarrow \text{X} - \text{C}_6\text{H}_{12}$$

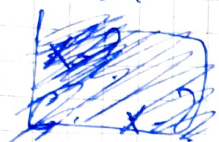
Ответ: C_6H_{12}

Дано:

$$\omega_c = 87,5\%$$

$$D_0 = 3,31$$

Найти



№ 8

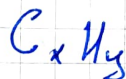
Решение:

$$\omega_H = 100\% - \omega_c$$

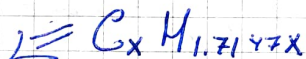
$$\omega_H = 12,5\%$$

$$N_c : N_H = n_c : n_H =$$

$$= \frac{87,5}{12} : \frac{12,5}{1} = 7,29 : 12,5 = 1,7147$$



$$1,7147x = y$$



$$M_x = 12x + 1,7147x$$

$$M_x = 13,7147x$$

$$M_x = M_0 \cdot D_0$$

$$M_x = 25\% \cdot 3,31$$

$$M_x = 8,275$$

$$\begin{cases} M_x = 13,7147x \\ M_x = 8,275 \end{cases}$$

$$13,7147x = 8,275$$

$$x = 7$$

$$y = 1,7147 \cdot 7$$

