

$$4+4+2+4=148$$

Олимпиадная работа

по математике

ученику 10 и класса

Викторовой Марии

Сергеевны



х моль FeCl<sub>2</sub>      у моль FeCl<sub>3</sub>

$$\begin{cases} x + y = 5 & (\text{Fe}) \\ 2x + 3y = 13 & (\text{Cl}) \end{cases}; y = 5 - x$$

$$2x + 3(5 - x) = 13$$

$$2x + 15 - 3x = 13; -x = 13 - 15; x = 2 \text{ моль FeCl}_2$$

$$y = 5 - 2; y = 3 \text{ моль FeCl}_3$$

$$m(\text{FeCl}_2) = 2 \text{ моль} \cdot 127 \text{ г/моль} = 254 \text{ г}$$

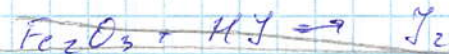
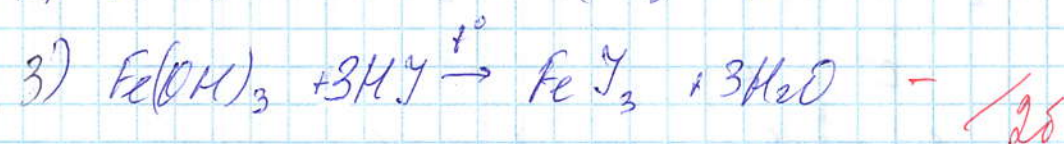
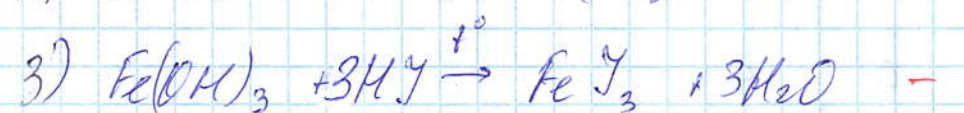
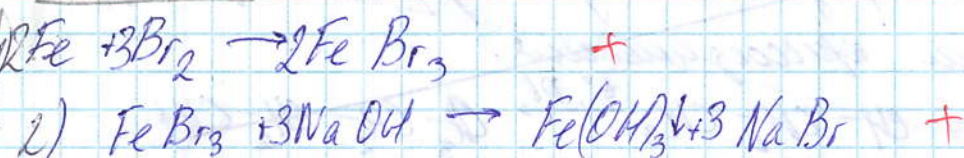
$$m(\text{FeCl}_3) = 3 \cdot 162,5 = 487,5 \text{ г} \quad m(\text{вещи}) = 487,5 + 254 = 741,5 \text{ г}$$

N2.

$$M(\text{FeCl}_2) = 56 + 35,5 \cdot 2 = 127 \text{ г/моль} \quad \checkmark 3$$

$$M(\text{FeCl}_3) = 56 + 35,5 \cdot 3 = 162,5 \text{ г/моль}$$

$$n = \frac{m}{M}, m = n \cdot M$$



$$w(\text{FeCl}_2) = \frac{254}{741,5} = 0,35$$

$$w(\text{FeCl}_3) = \frac{487,5}{741,5} = 0,66$$

$$\text{Orkes: } w(\text{FeCl}_2) = 35\%$$

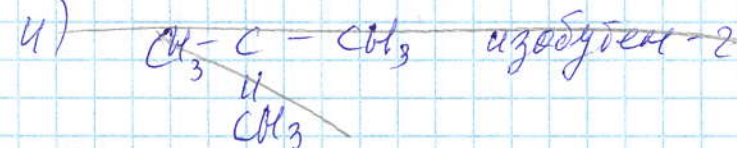
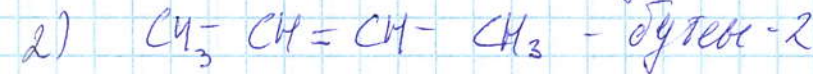
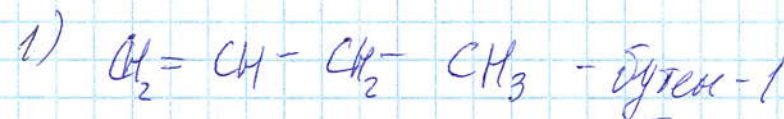
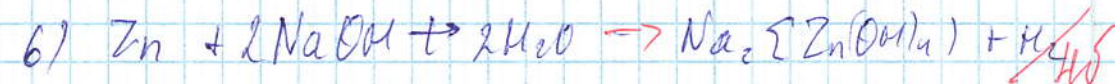
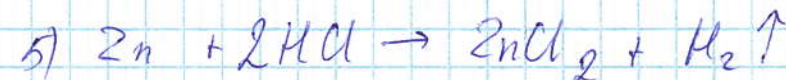
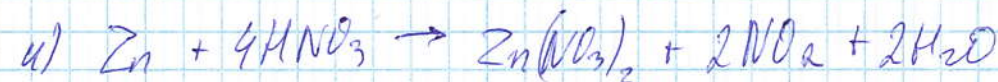
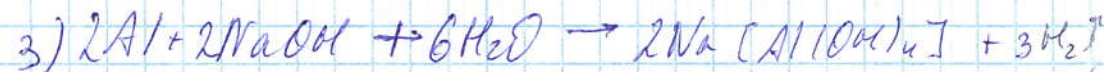
$$w(\text{FeCl}_3) = 66\%$$

N4

1. - Ag

2. - Al

3. - Zn



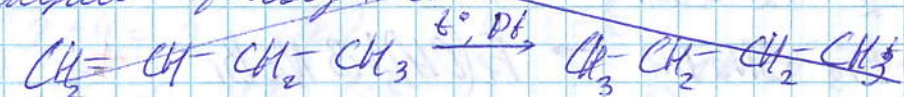
циклобутен

циклобутен

45



Для определения углеводородов характерны  
реакции присоединения.



Адрес: Пресненский Поклон 14, кв 25  
Телефон: 8952 708 21 09

$$4 + 4 + 2 + 3 = 135.$$

Аналитическая работа

по химии (I тур)

ученика 10 М класса

Жафарова Самана Жафаровны



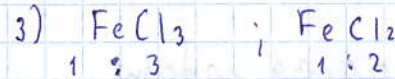
Дано:  $\text{FeCl}_2, \text{FeCl}_3, \frac{w(\text{Fe})}{w(\text{Cl})} = \frac{5}{13}$

$w(\text{FeCl}_2) = ?$   
 $w(\text{FeCl}_3) = ?$

Решение:

$$2) w(\text{FeCl}_2) = \frac{m(\text{FeCl}_2)}{m_p}$$

$$w(\text{FeCl}_3) = \frac{m(\text{FeCl}_3)}{m_p}$$



$$\frac{3 \text{ FeCl}_3}{\text{Fe}} = \frac{2 \text{ FeCl}_2}{\text{Fe}} \Rightarrow \frac{3 \cdot 162,5}{56} = \frac{2 \cdot 127}{56} \Rightarrow \frac{487,5}{56} = \frac{254}{56}$$

$$4) m(\text{FeCl}_2) = n \cdot M = 2 \cdot 127 = 254$$

$$n(\text{FeCl}_2) = 56 + 35,5 \cdot 2 = 127 \text{ г/моль}$$

$$5) m_p = 287,5 + 254 = 541,5 \text{ г}$$

$$m(\text{FeCl}_3) = n \cdot M = 3 \cdot 162,5 = 487,5 \text{ г}$$

$$M(\text{FeCl}_3) = 56 + 35,5 \cdot 3 = 162,5 \text{ г/моль}$$

$$6) w(\text{FeCl}_2) = \frac{254}{541,5} = 0,47$$

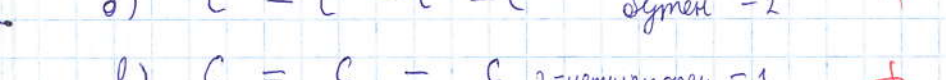
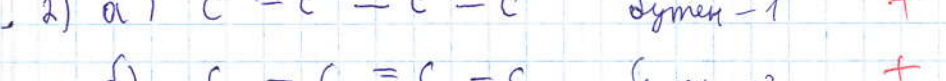
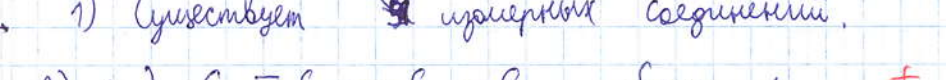
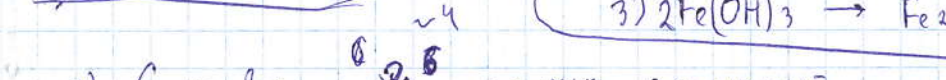
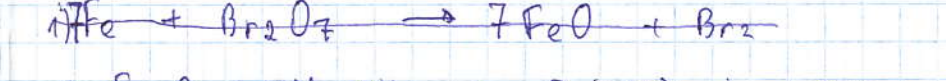
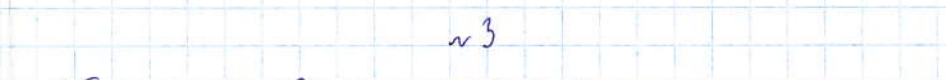
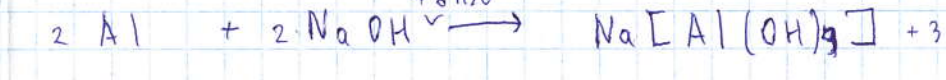
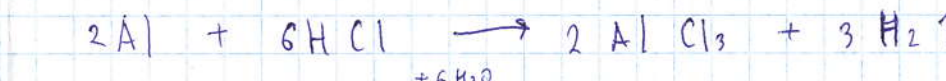
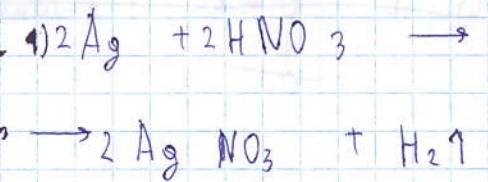
$$7) w(\text{FeCl}_2) = \frac{254}{541,5} = 0,47 (47\%)$$

$$w(\text{FeCl}_3) = \frac{487,5}{541,5} = 0,9 (90\%)$$

Ответ:  $w(\text{FeCl}_2) = 47\%$  ;  $w(\text{FeCl}_3) = 90\%$

N°	$\text{HNO}_3$	реакция	$\text{HCl}$	$\text{NaOH}$
1	$\text{Zn} + 2\text{HNO}_3 \rightarrow$	$\text{Zn(NO}_3)_2 + \text{H}_2\uparrow$	—	—
2	—	$2\text{Ag} + 2\text{HCl} \rightarrow 2\text{AgCl}\downarrow + \text{H}_2\uparrow$	$\text{Ag} + \text{NaOH} \rightarrow$	$\text{AgOH} + \text{Na}$
3	$\text{Al} + 2\text{HNO}_3 \rightarrow$	$\text{Al(OH)}_3\downarrow + \text{H}_2\uparrow$	—	—

N°	$\text{HNO}_3$	$\text{HCl}$	$\text{NaOH}$
1	+	—	—
2	—	+	+
3	+	+	+





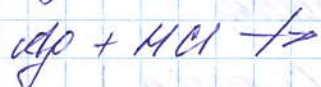
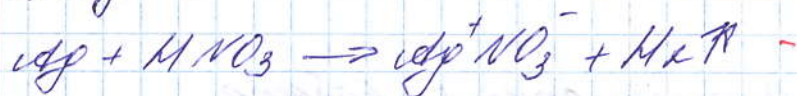
$$0 + 3,5 + 5 + 3 = 11,55$$

Олимпиадная работа  
по физике (7 класс)  
ученицы 10-го класса  
Суровой Анастасии Александровны



Задача 2

1) Fe

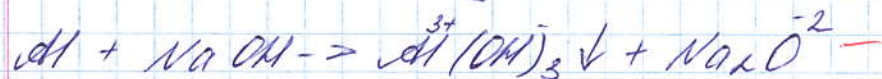


} +

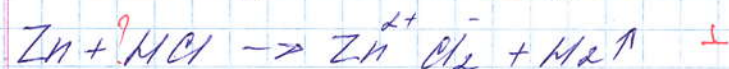
алюминий

используя  
к-а

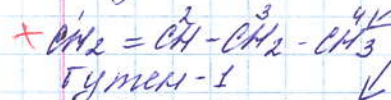
2) Al



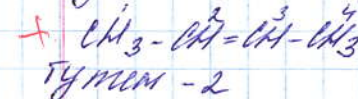
3) Zn



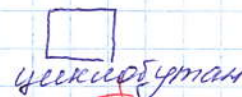
Задача 4



бутен-1

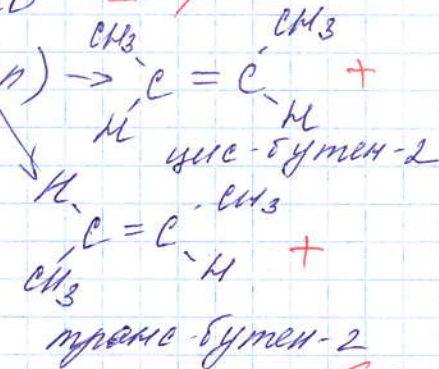


бутен-2



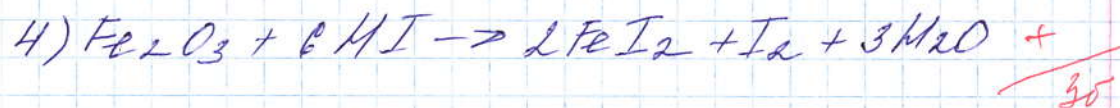
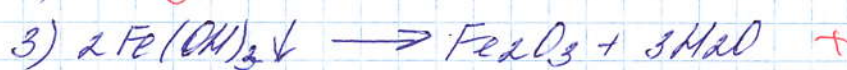
циклобутан

цис-и транс-  
измерения



56

Задача 3



35

Задача 1

65



$$3,5 + 4 + 4 + 0 = 11,58$$

Виконавча робота

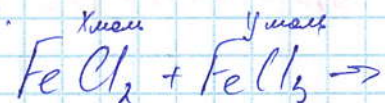
по машини (I груп)

ученика 10 класу

Назорова Рамис Азатовича



3.



$$\rightarrow \begin{cases} x+y=5 \\ 2x+3y=13 \end{cases} \quad \begin{aligned} y &= 5-x \\ 2x+3 \cdot 5-x &= 13 \\ 2x+15-x &= 13 \\ 2x-x &= 13-15 \\ x &= 2 \end{aligned} \quad \begin{aligned} 2+y &= 5 \\ y &= 3 \end{aligned}$$

$$1) w(\text{FeCl}_2) = \frac{m(\text{FeCl}_2)}{m(\text{амени})} = \frac{2522}{7352} = 0,34 (34\%)$$

$$2) m = n \cdot M = 2 \cdot 126 = 2522$$

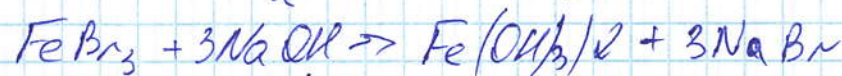
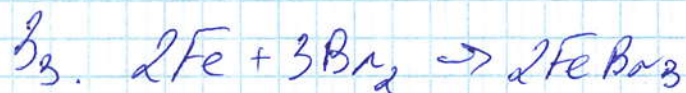
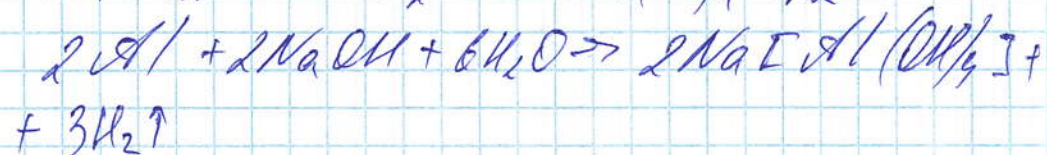
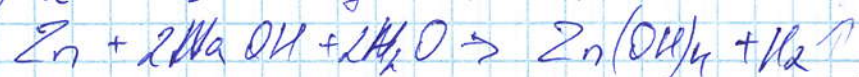
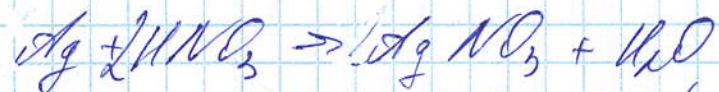
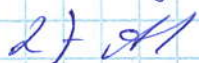
$$M(\text{FeCl}_2) = 56 + 35,5 \cdot 2 = 126$$

$$M(\text{FeCl}_3) = 56 + 35,5 \cdot 3 = 161$$

$$3) m(\text{FeCl}_3) = 3 \cdot 161 = 4832$$

$$5) w(\text{FeCl}_3) = \frac{2522}{(2522+4832)} = 0,34 (34\%)$$

$$\text{ответ: } w(\text{FeCl}_2) = 34\% ; w(\text{FeCl}_3) = 66\%$$



11,55