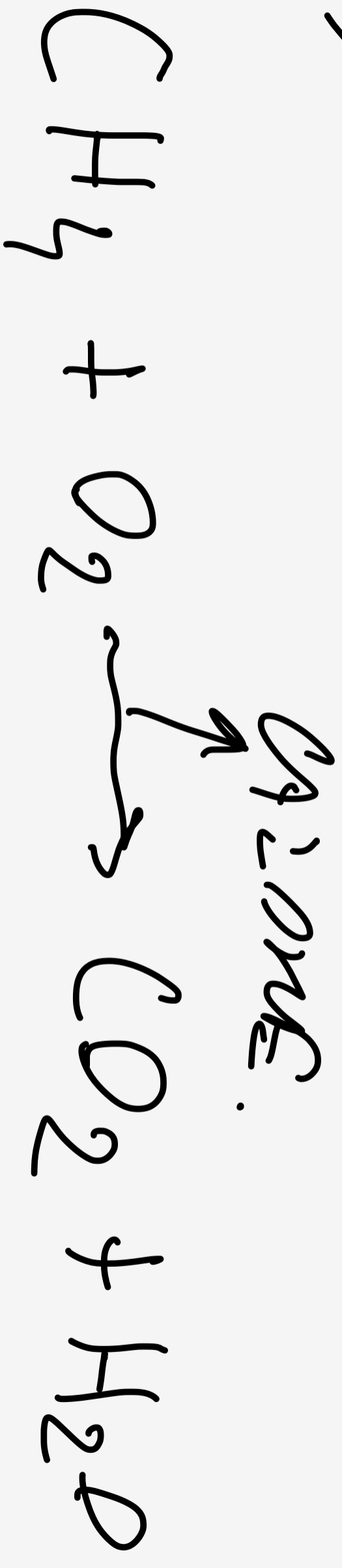


ALCANI C-H
TUTTI I CARBONI SP³

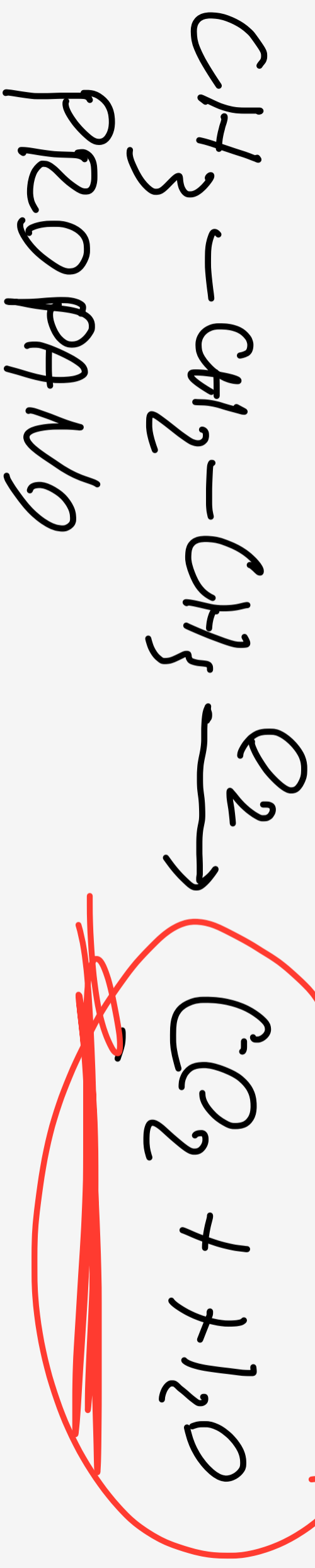
1) RABICALICHE

2) OSSIDAZIONE (COMBUSTIONE)





ETANO

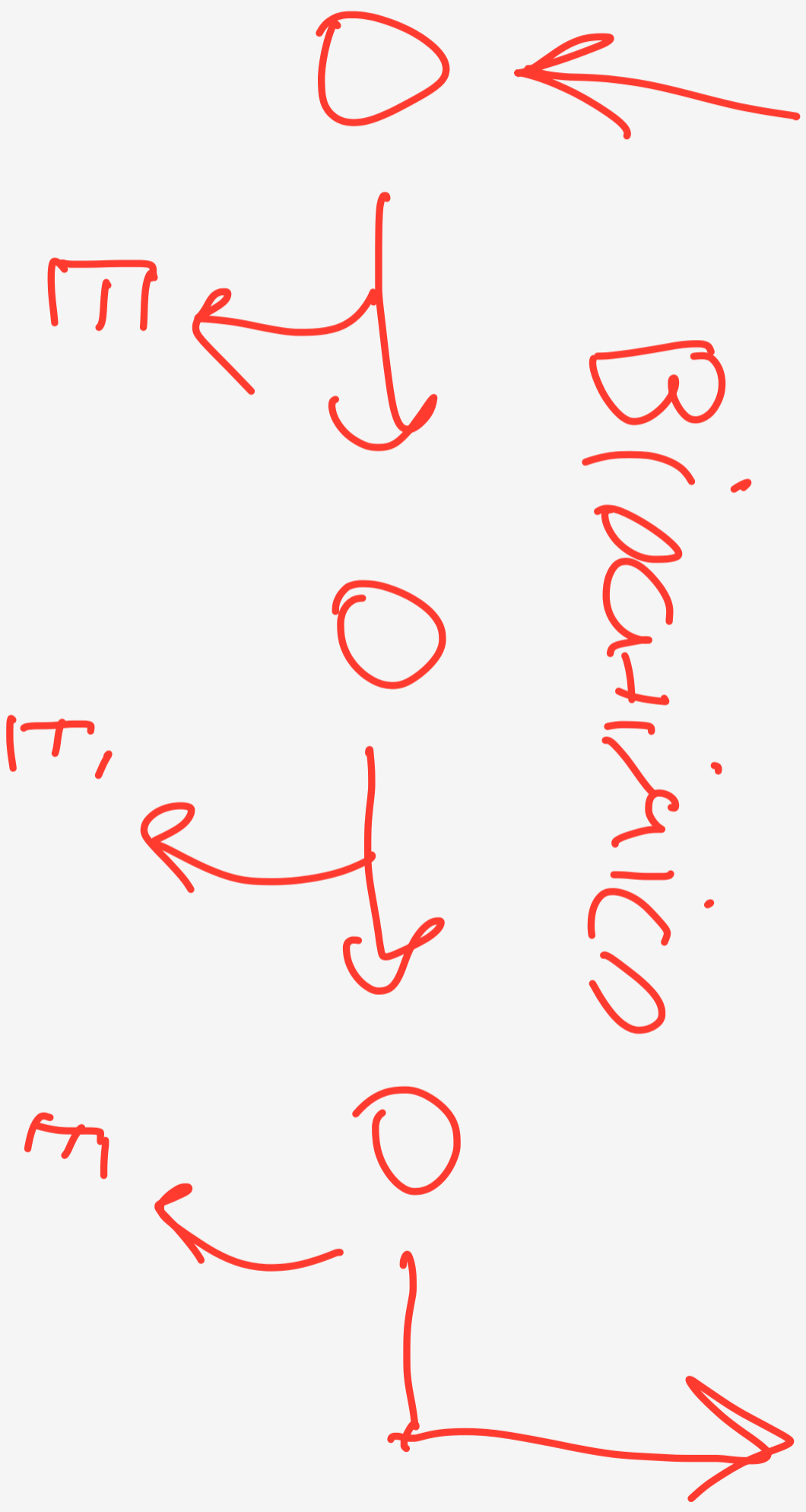


PROPANO

Trtrtrtrtr



Biochemistry

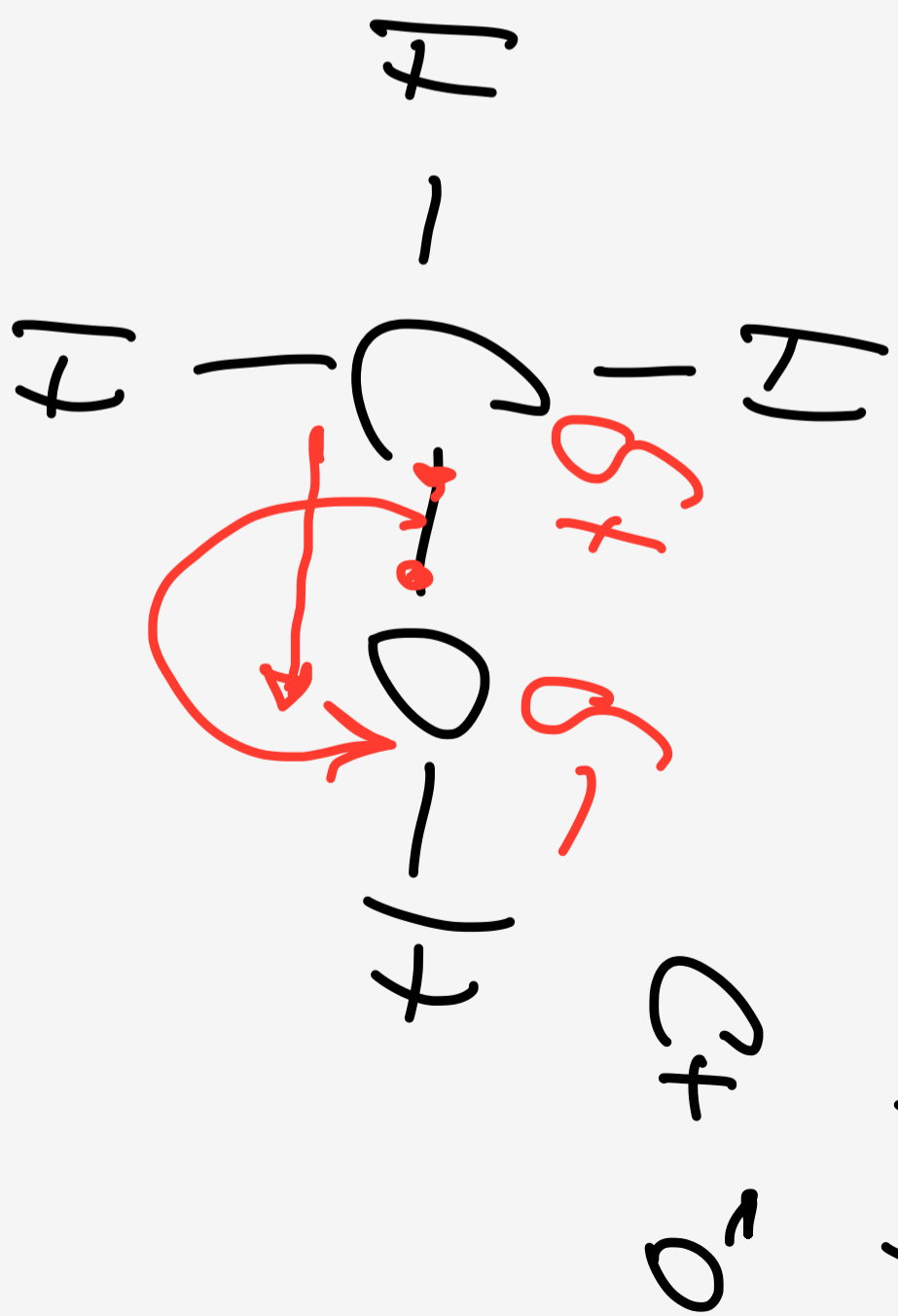
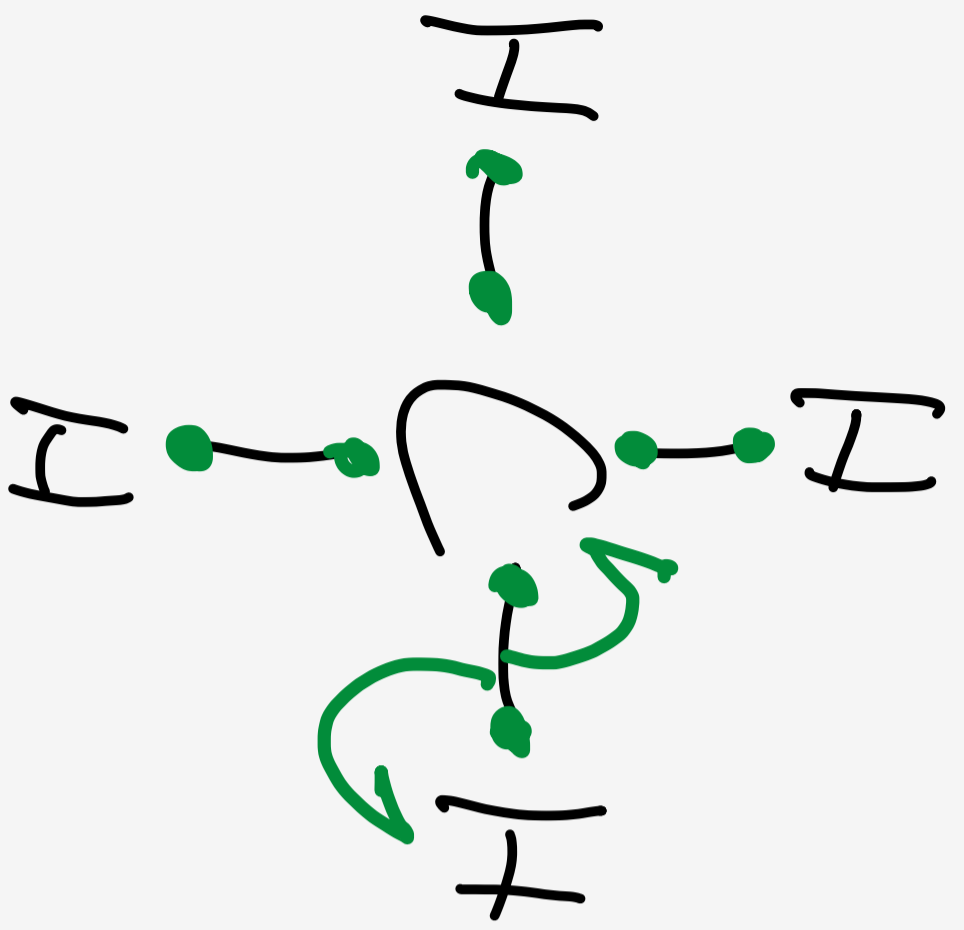


ATP MONITOR ENERGY

ALCAN

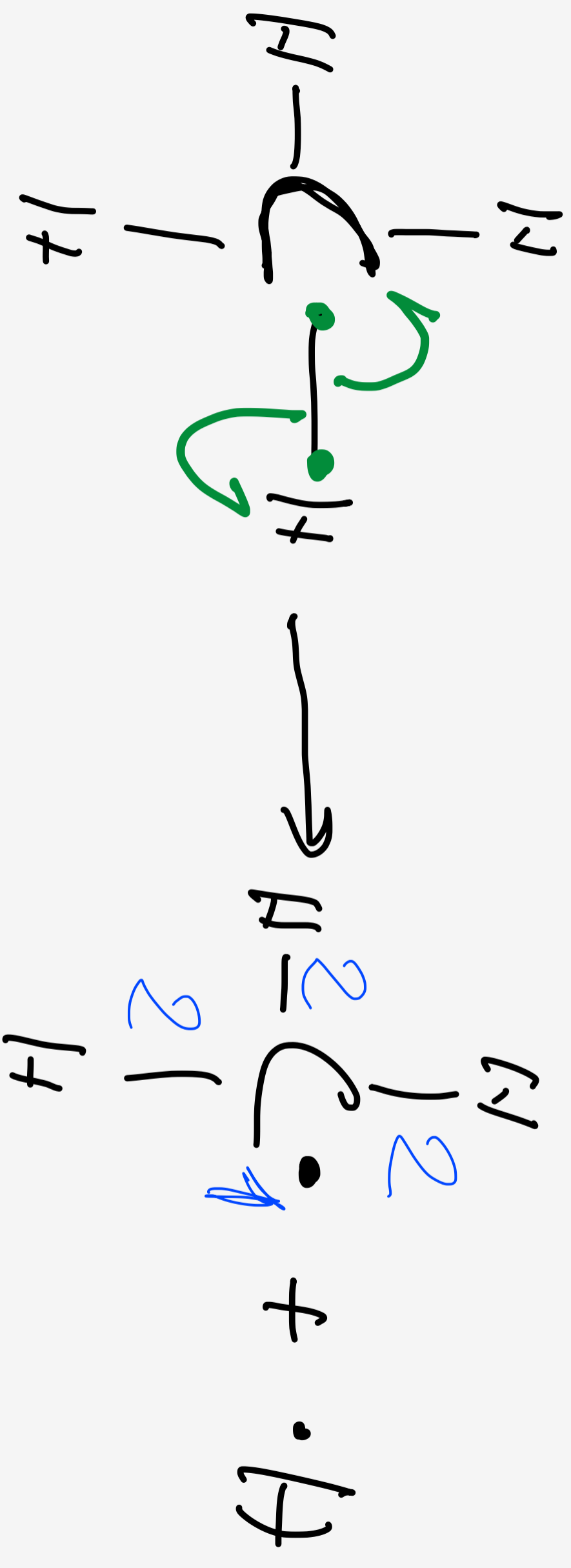
RAKOBICALIHE

ETEROZITIA



METANO

METANOZO



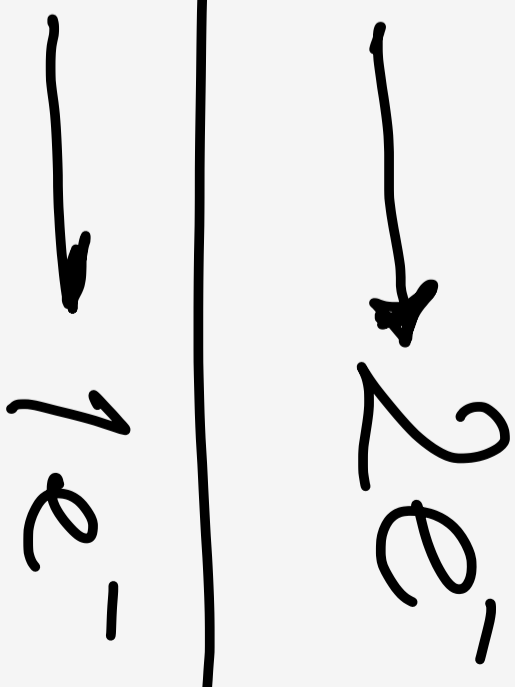
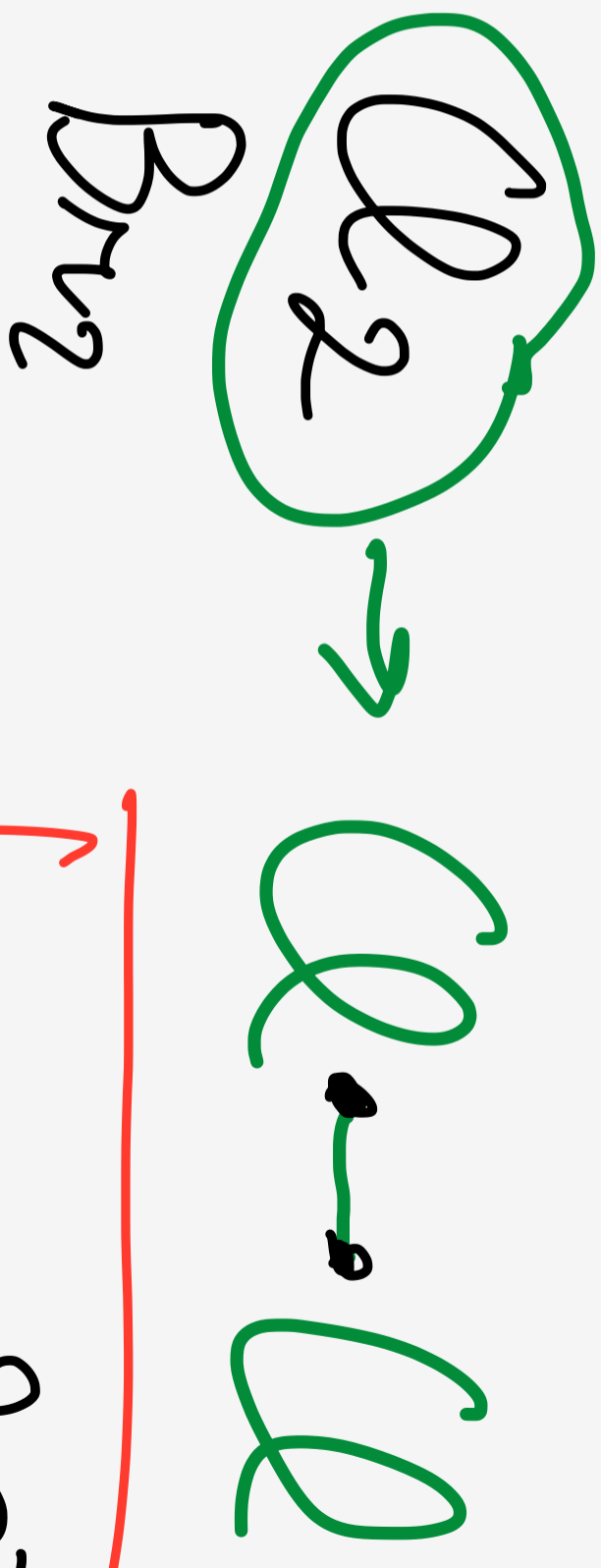
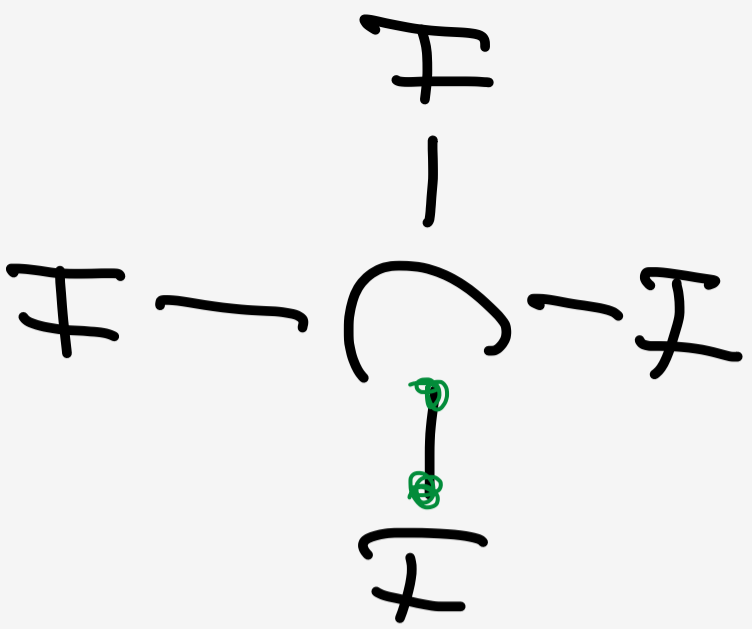
RAдикаЛИЧНІ



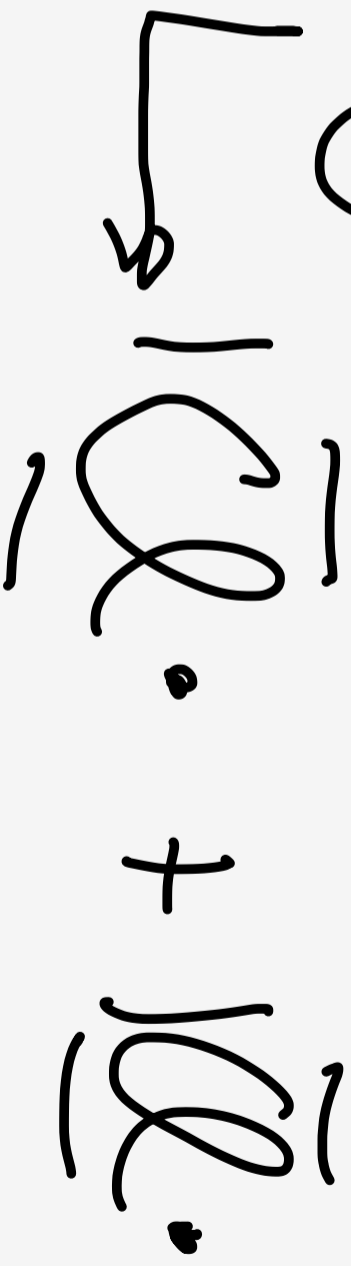
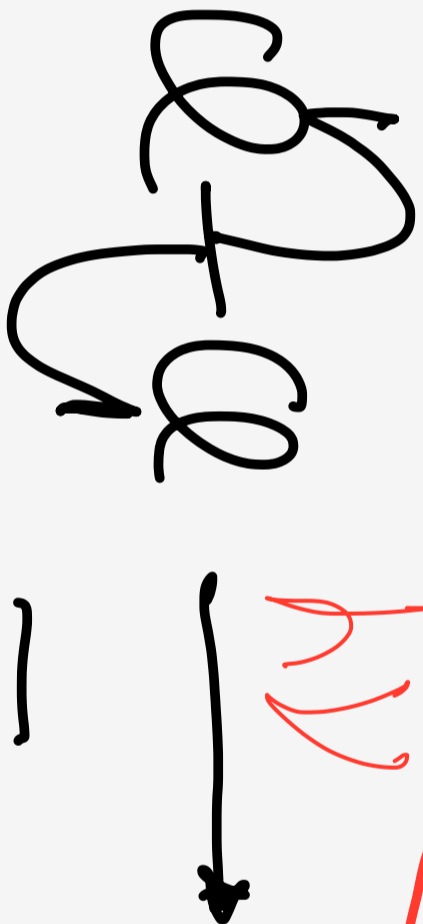
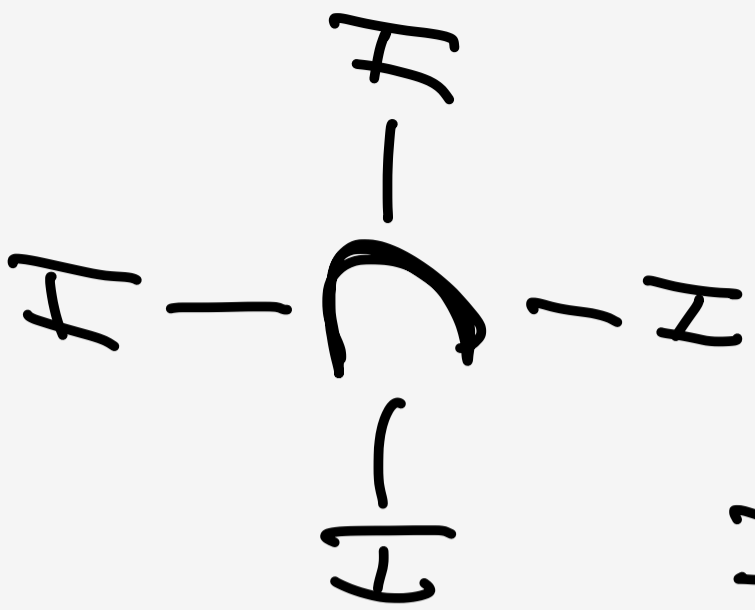
то ренале ESTRUENAMBORE

REACTIVO

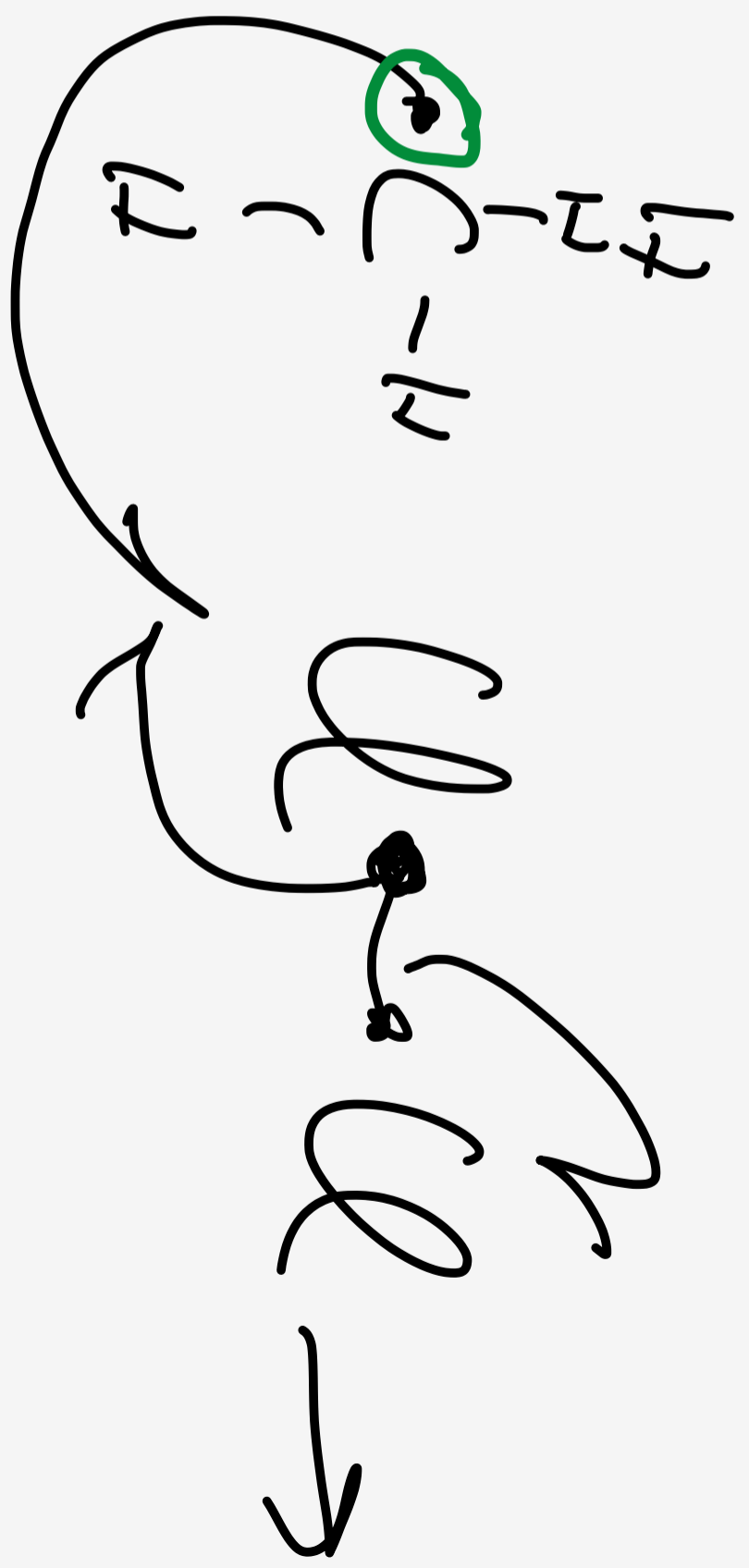
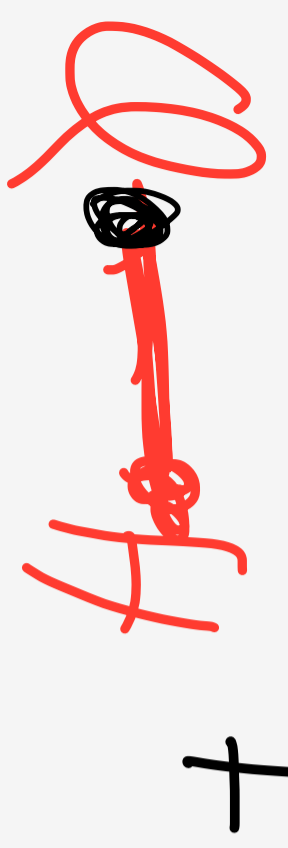
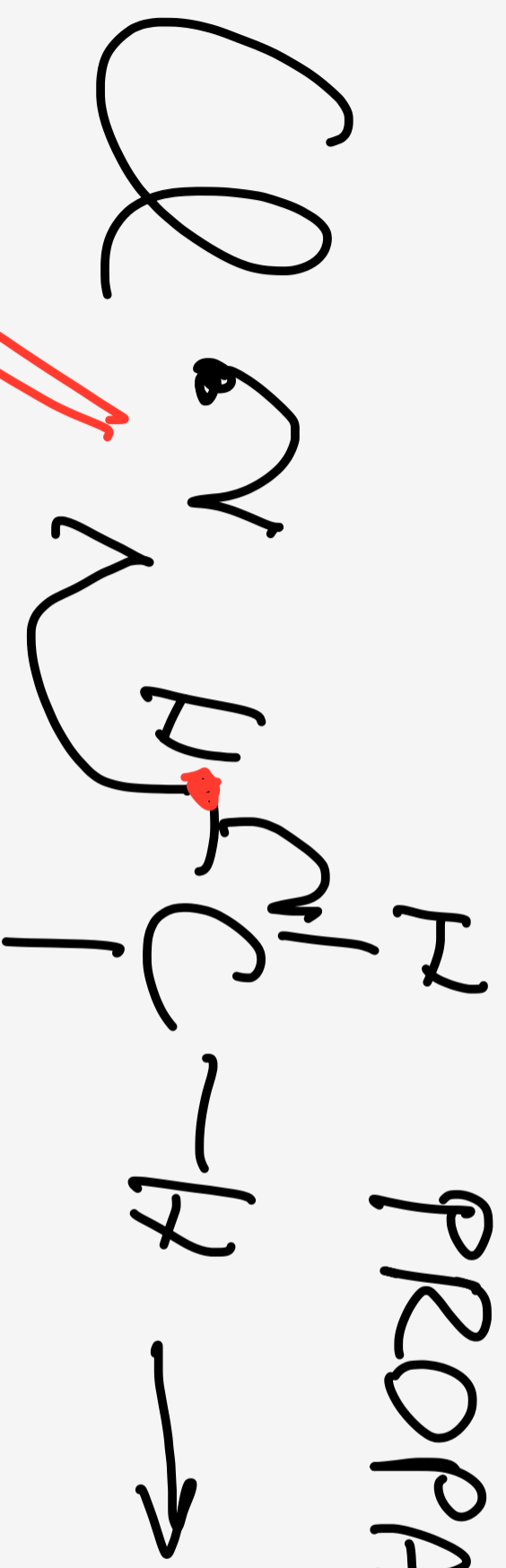
VOLUME 8e- (оттetto)

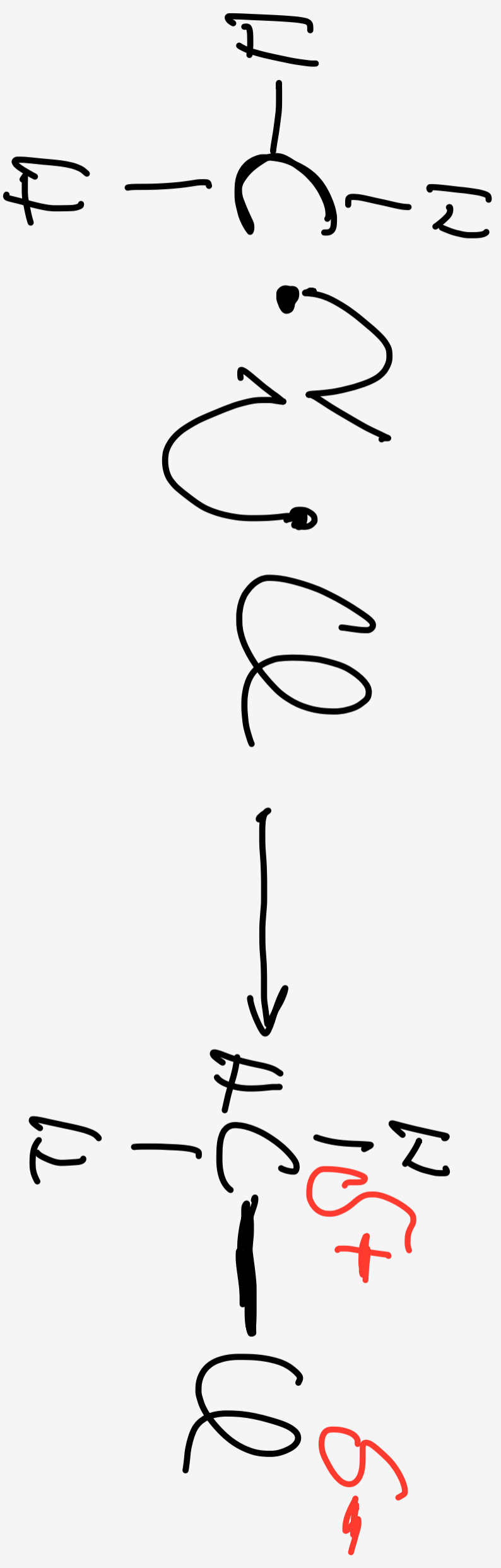


ATTIVAZIONE



PROPA-GAZIÖN





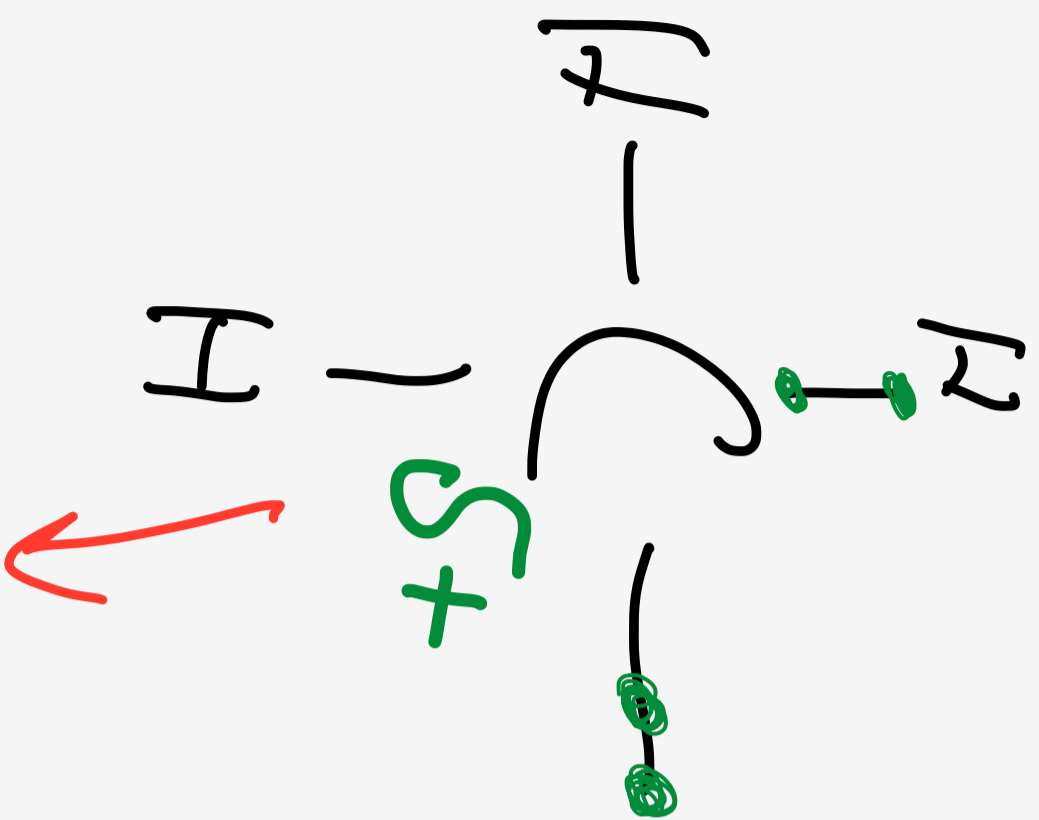
SPERG-MIBUTD

CH₄ ALCOHOL

CH₃-O

Chloroform

ALCOHOL ALCOHOL



S⁻

→ NUCLEOPHILIC

↳ BUON GRUPPO

USCIBUTE

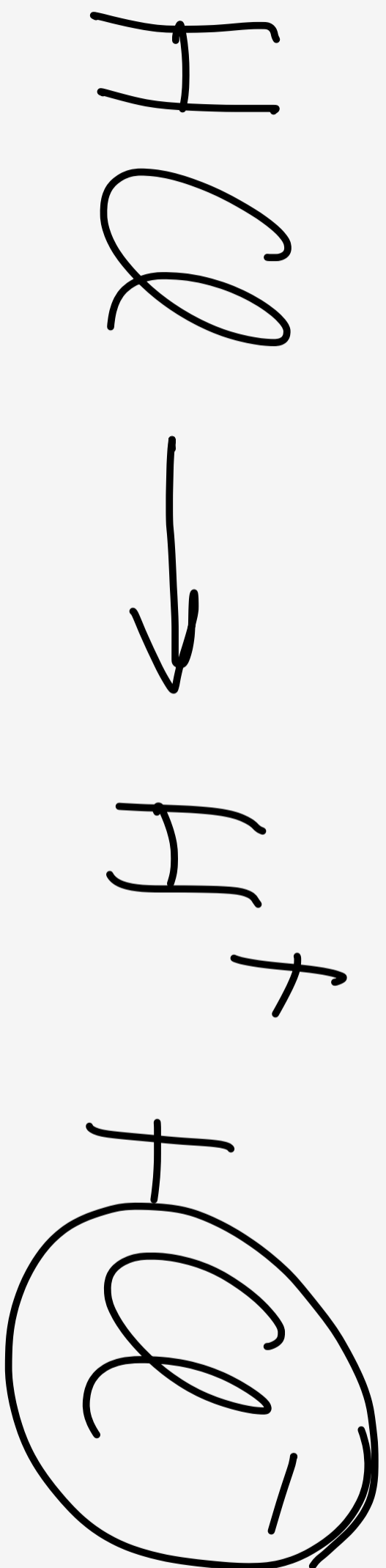


ELETTROFILO

BASE CONS.

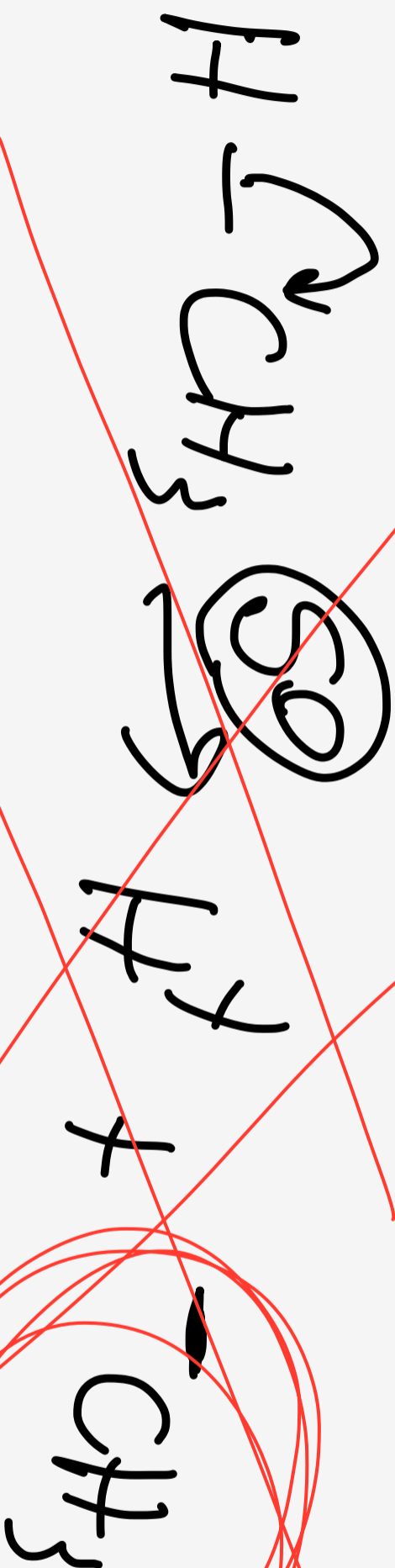
HQ.

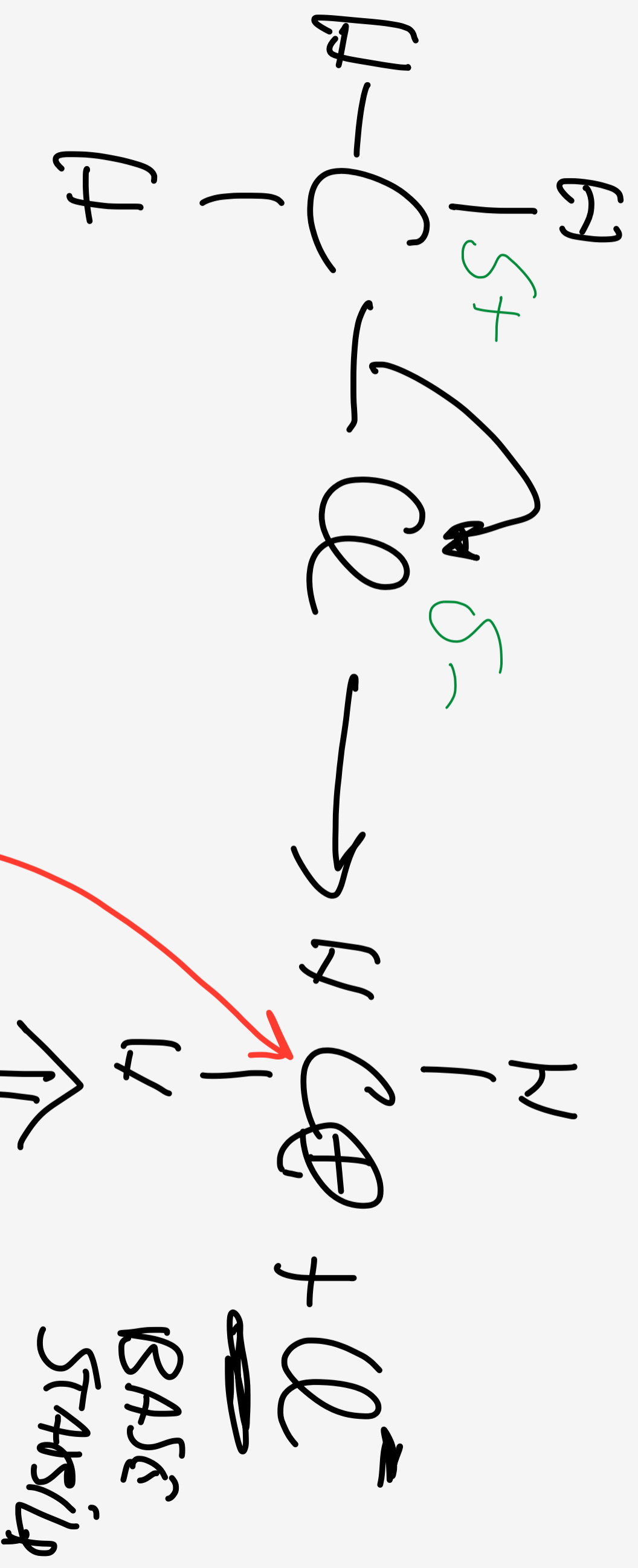
Azido Ione

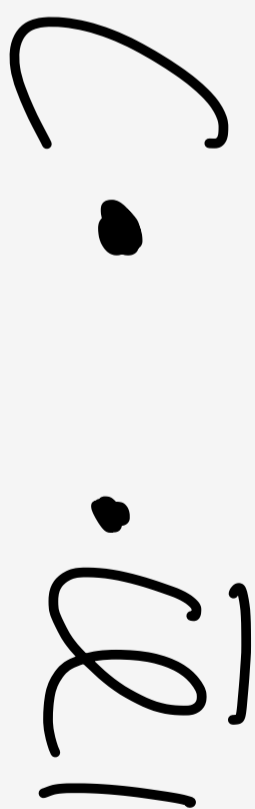


BASE CATION

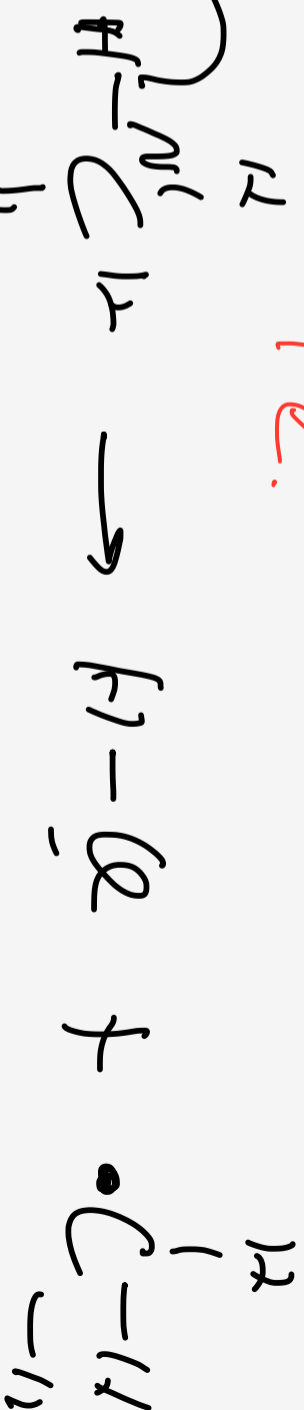
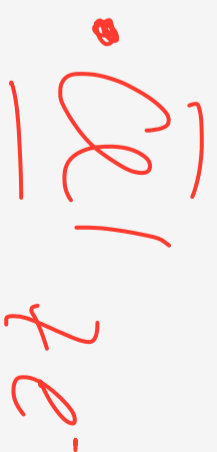
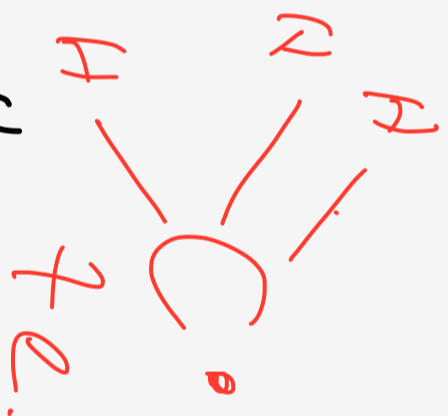
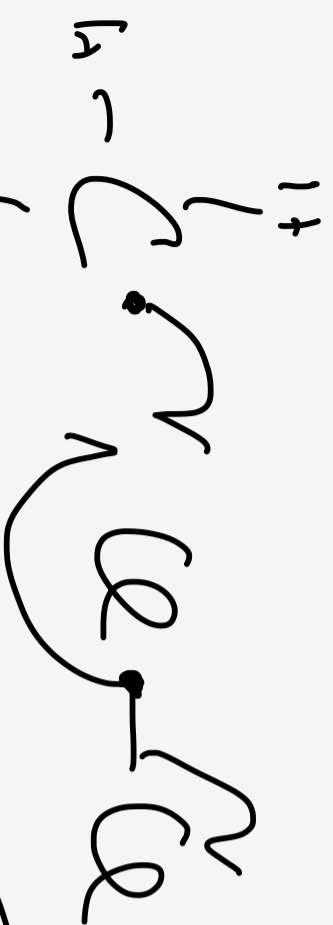
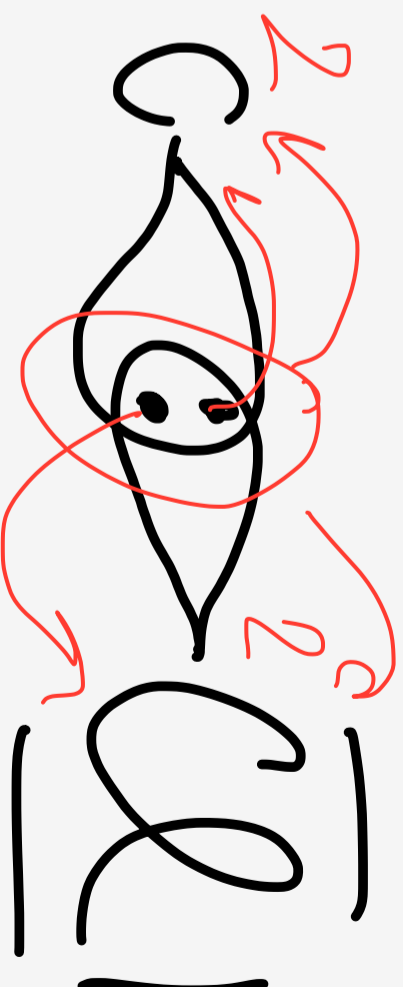
H_2O

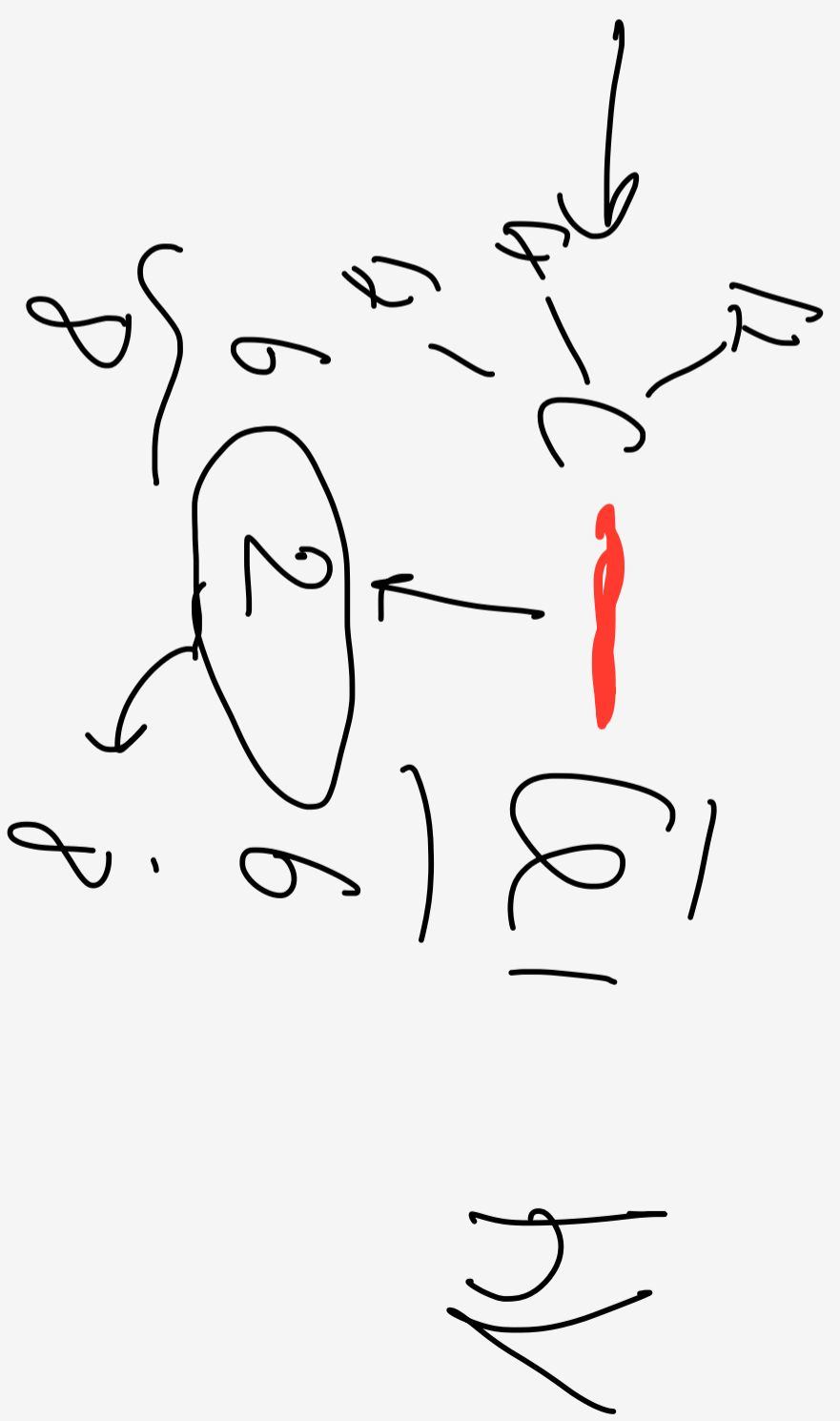


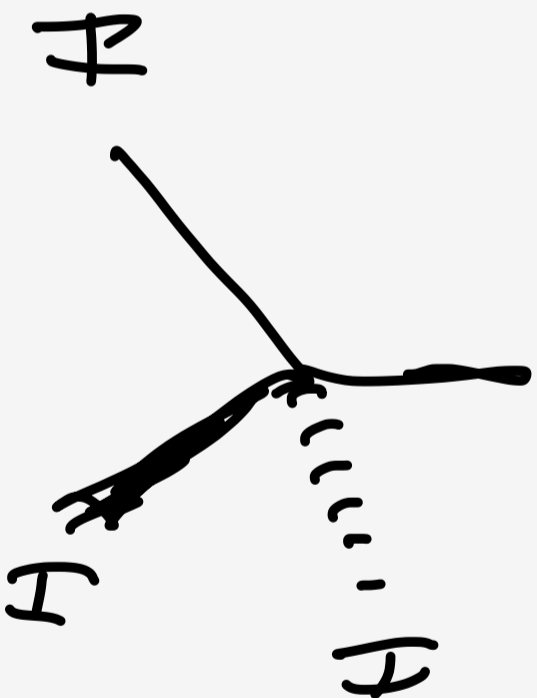




$+e^-$







METHANO

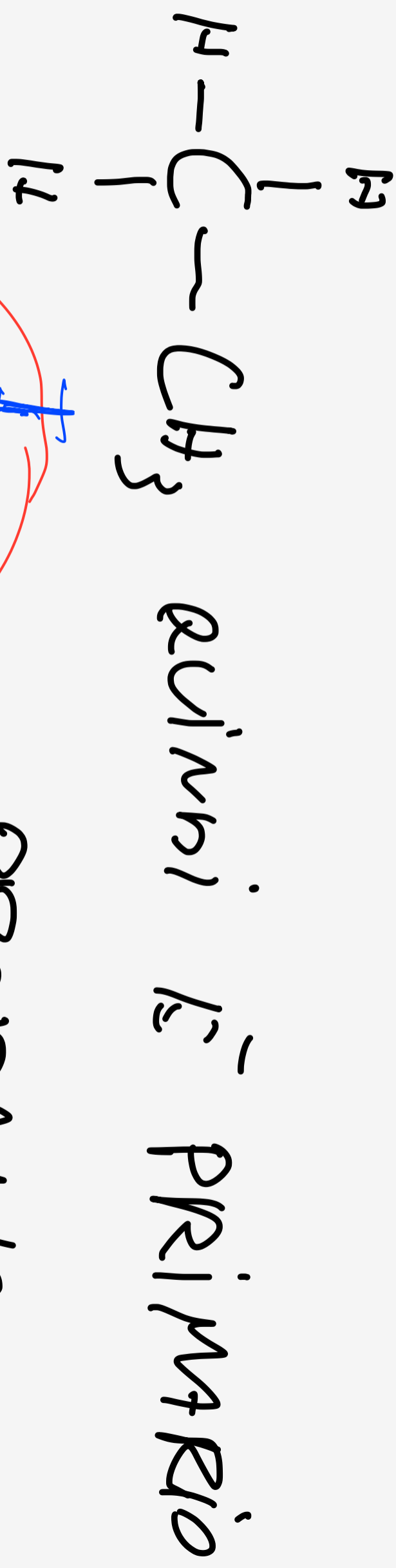
ALCANO



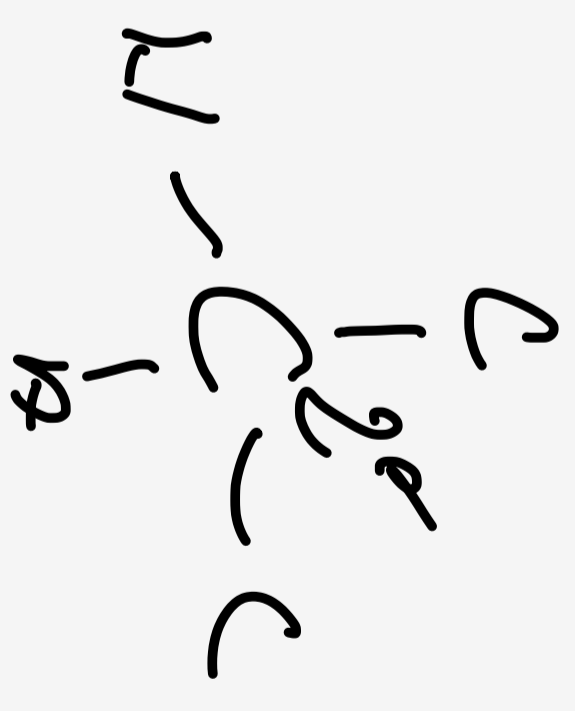
ALCHENE

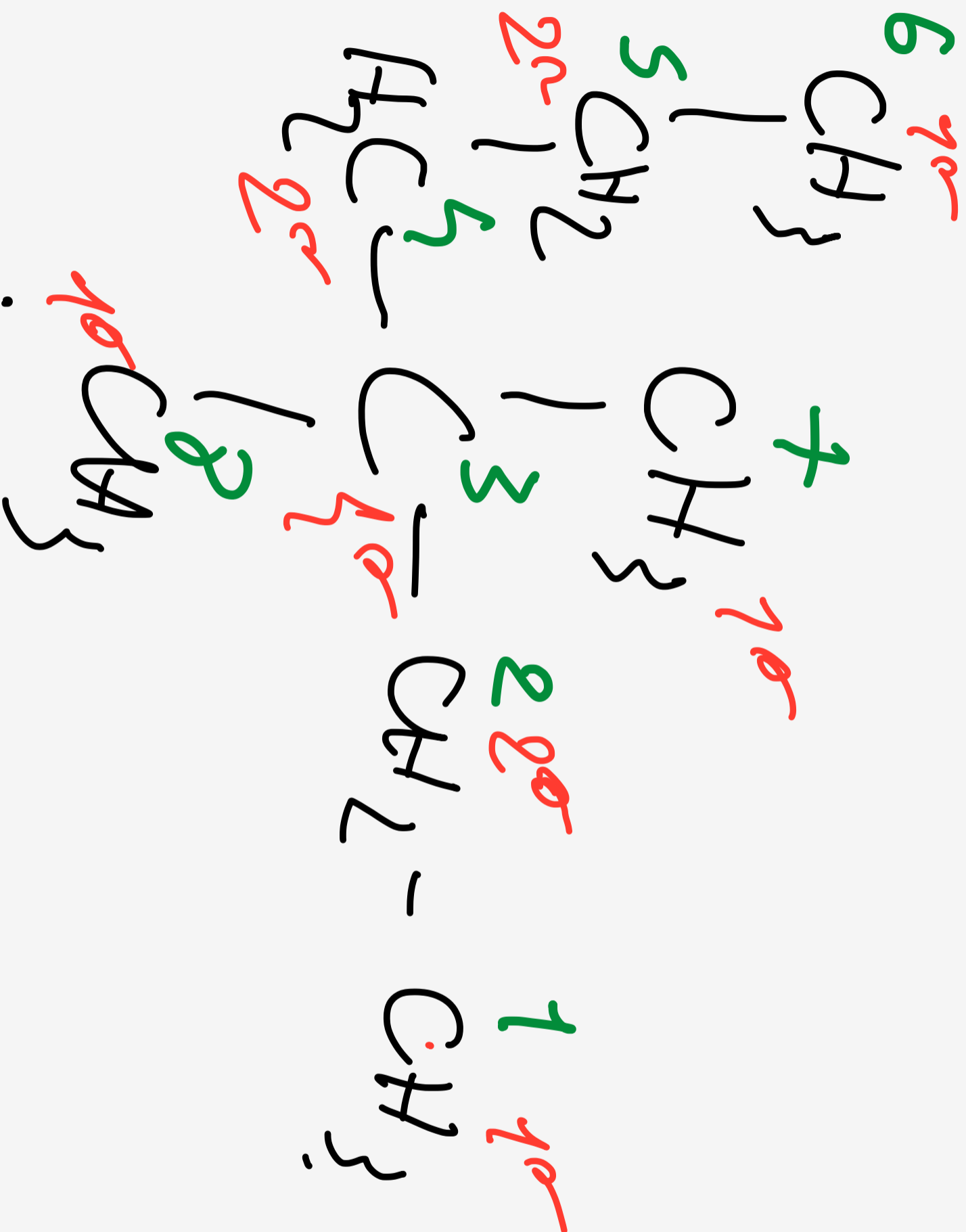
ETENE

1^o



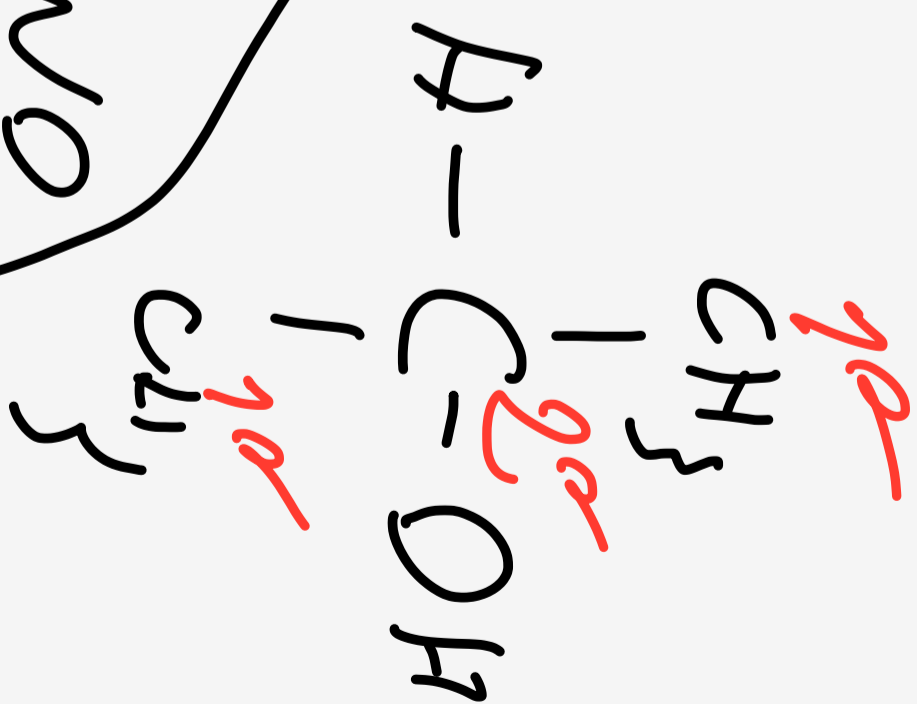
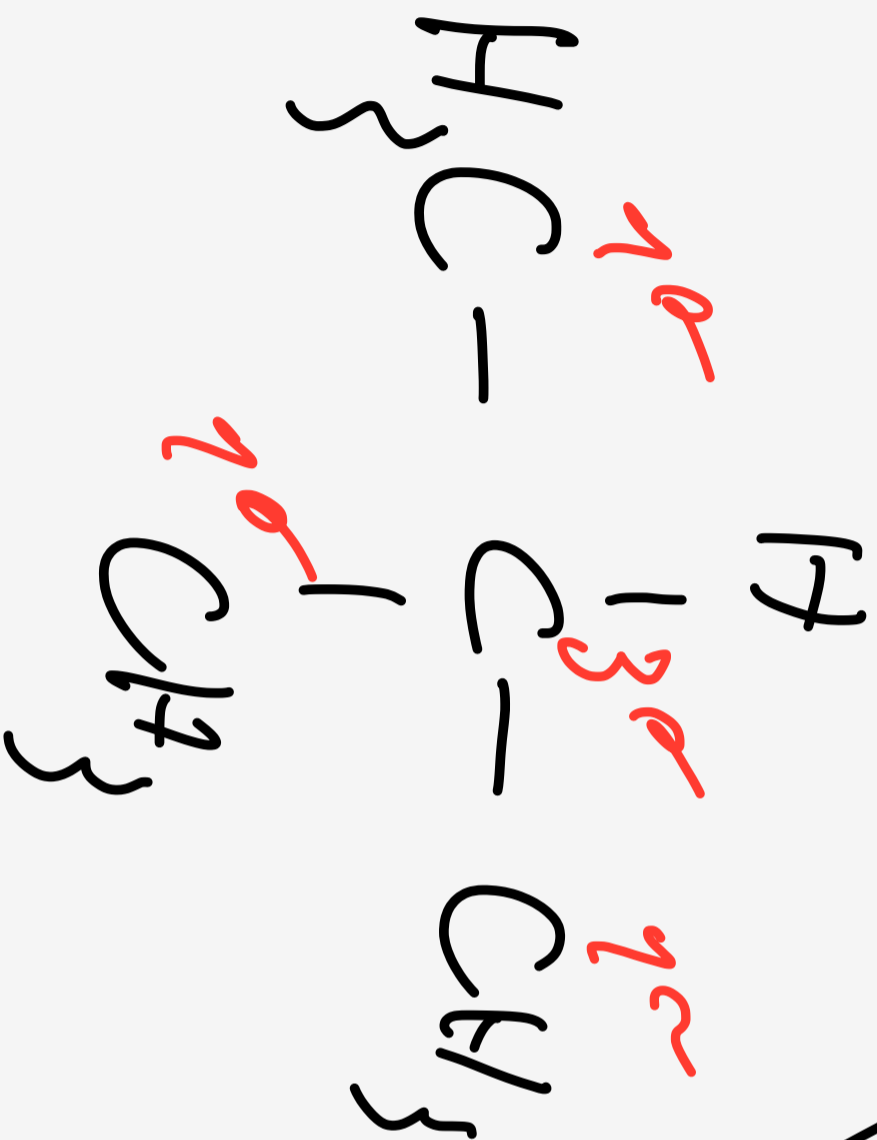
PROPANO





3,3-DIMETHYL. ESSANO

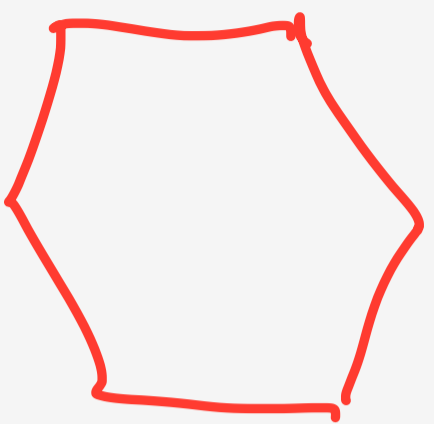
ETANOLO



2-METIL-PROPANO

2-PROPAN

OLO

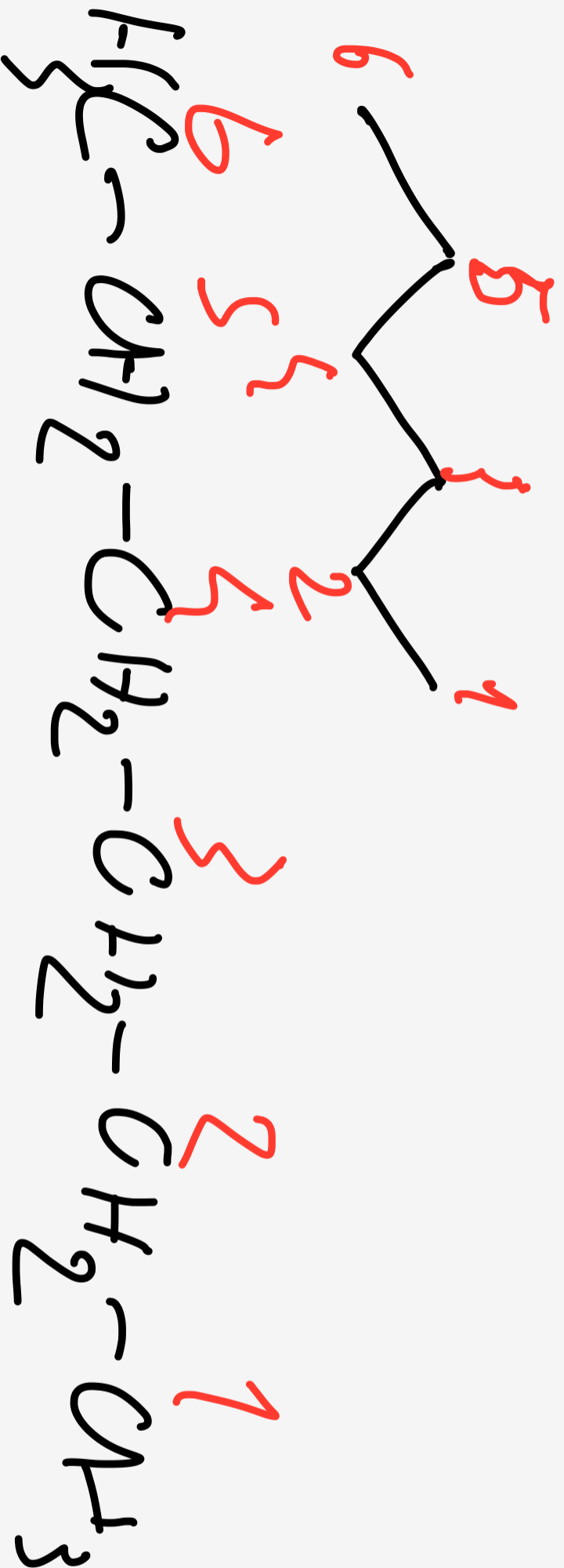


ciclo

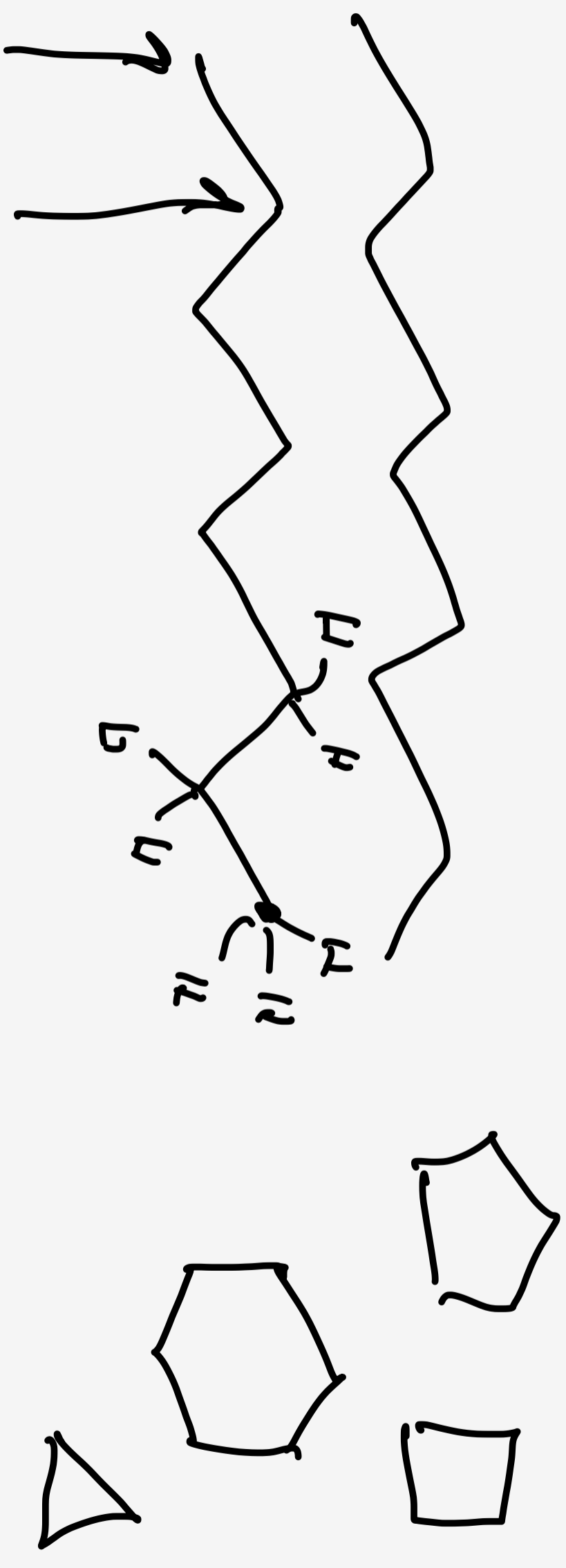
ESANO

→ ALCANO

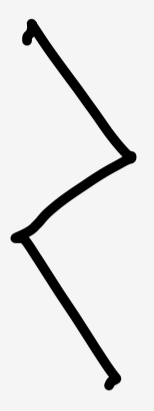
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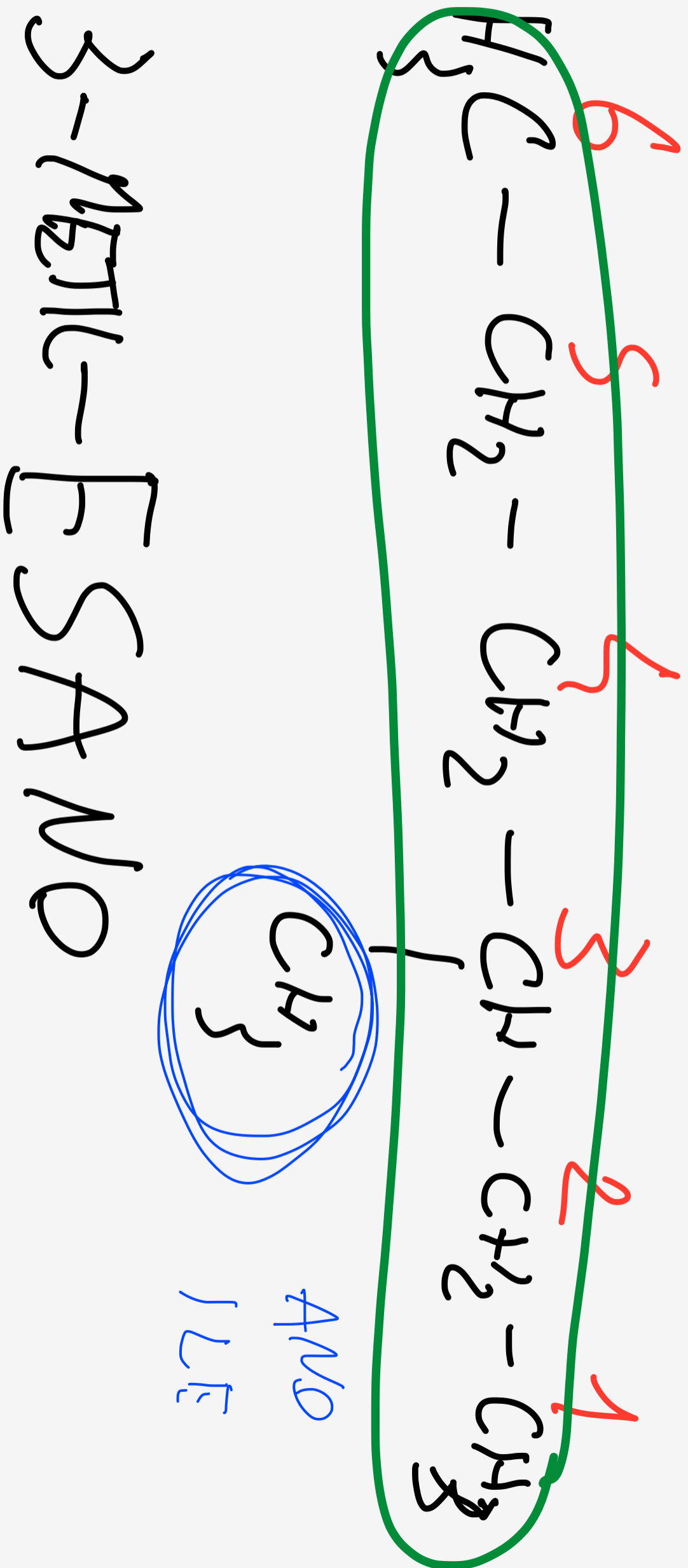


ESANO



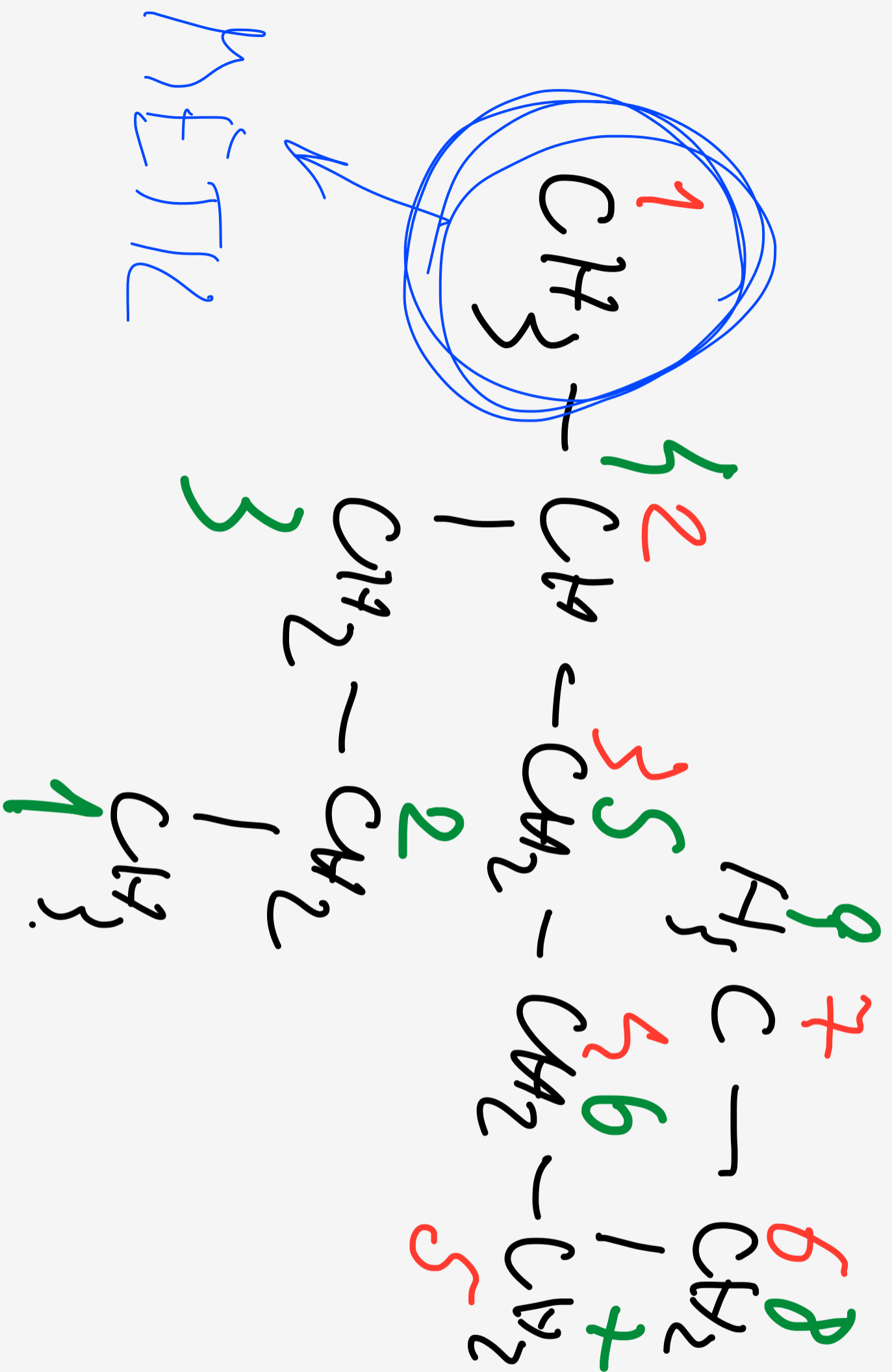
7 CARBON 15 H





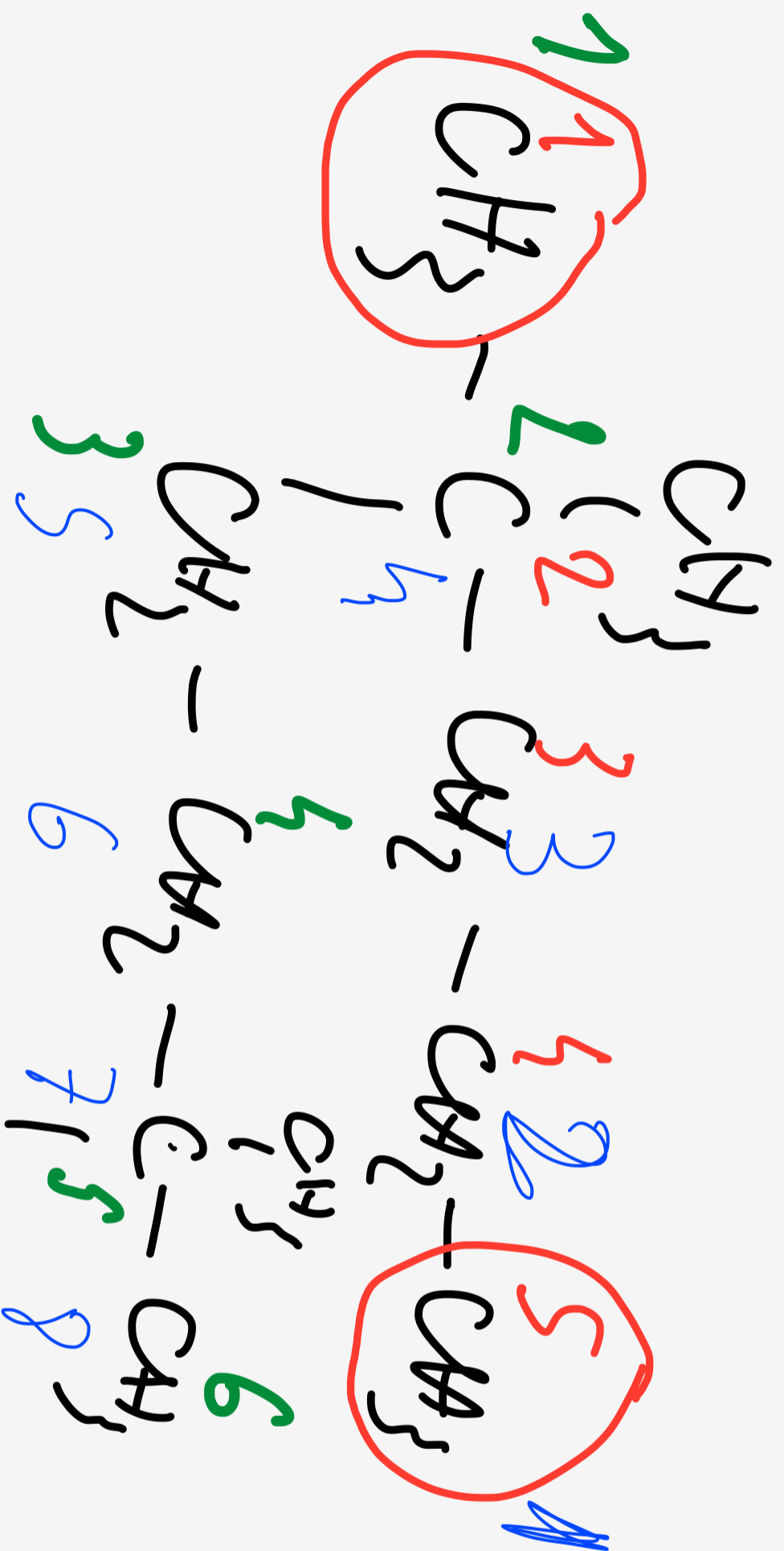
3-METHYL-1-HEXANO

~~4-METHYL-1-HEXANO~~



OK → 4-Methyl-Nonano

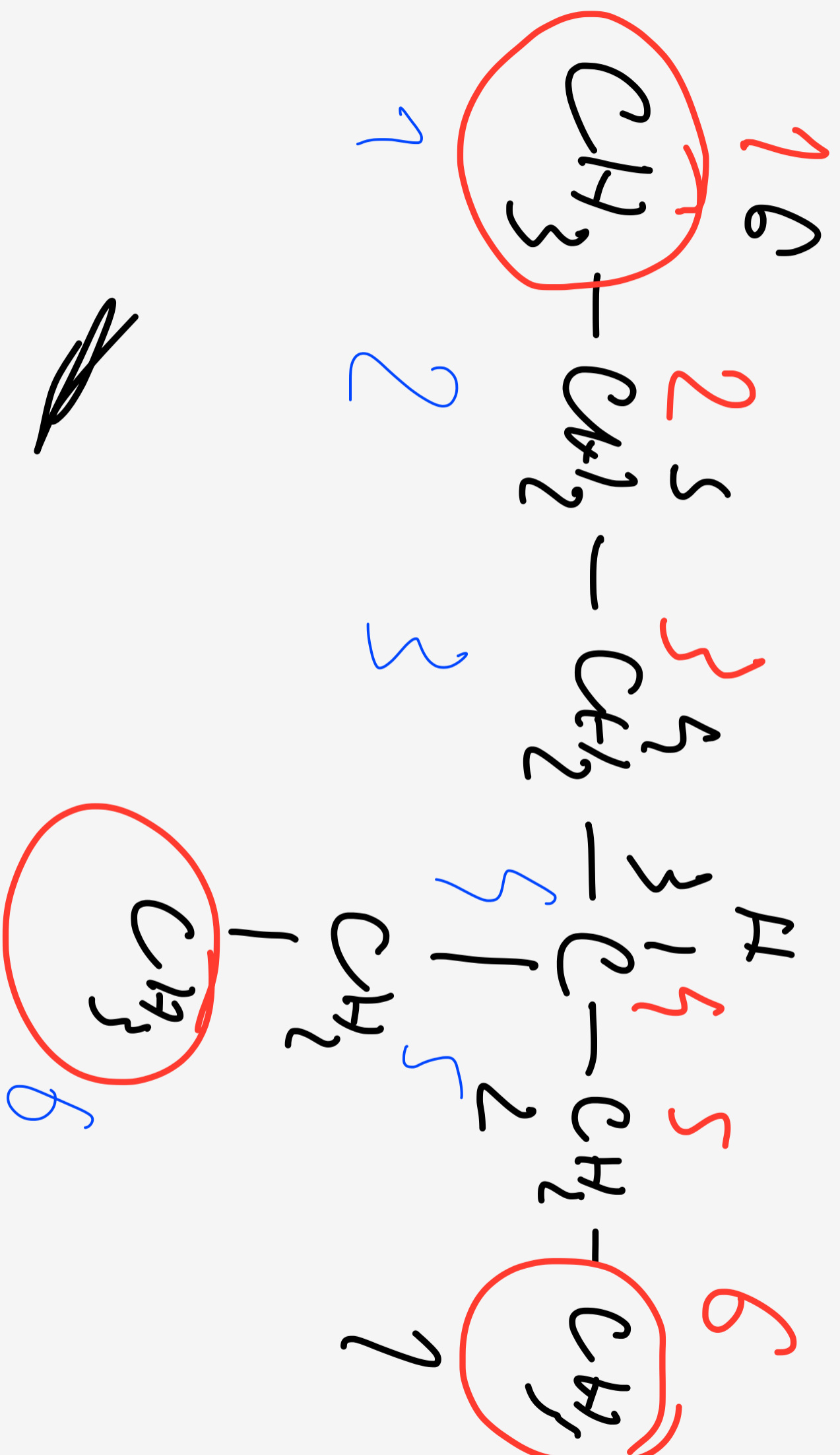
~~6-Methyl-Nonano~~



2-МЕТИЛІ СУК ЦАРБОУІО 2

2-МЕТИЛІ СУК 5 ОТТАНО

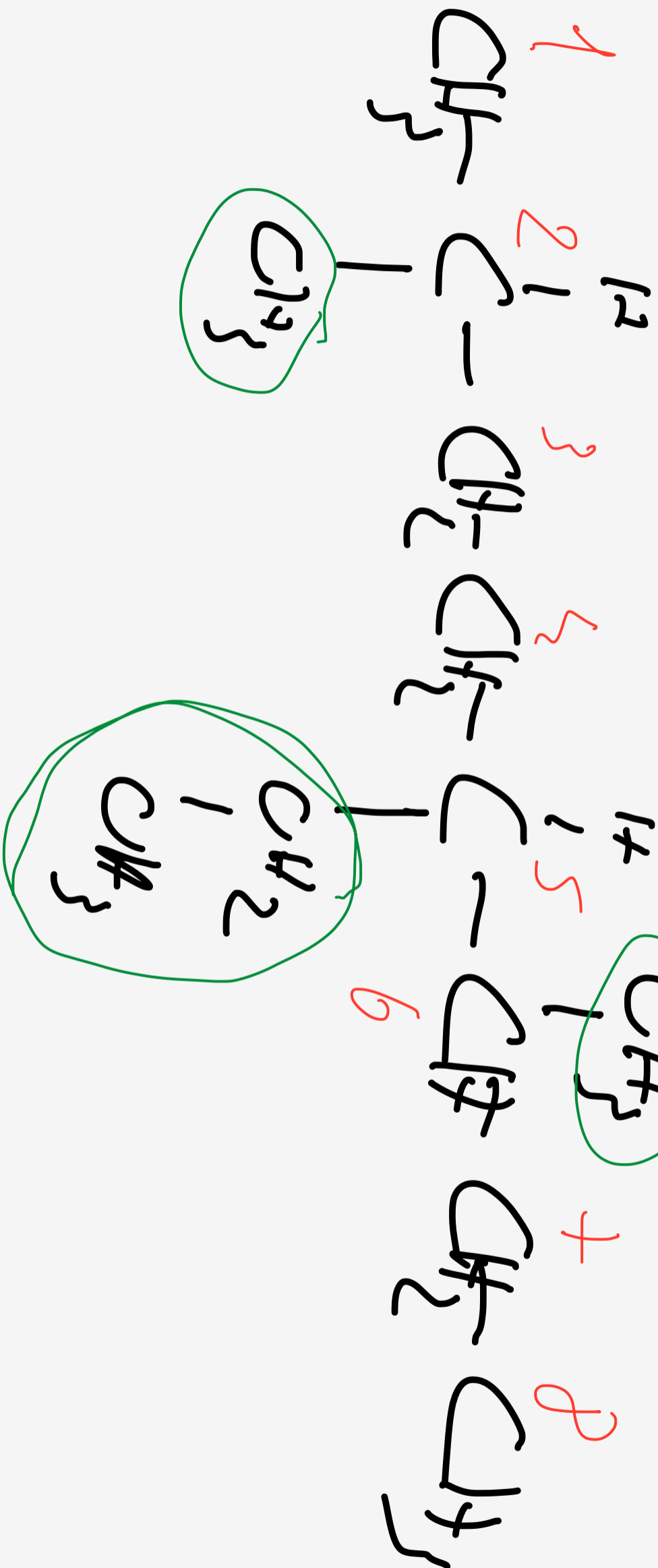
2,2',5,5'-ТЕТРАМЕТЛ-ОТТАНО



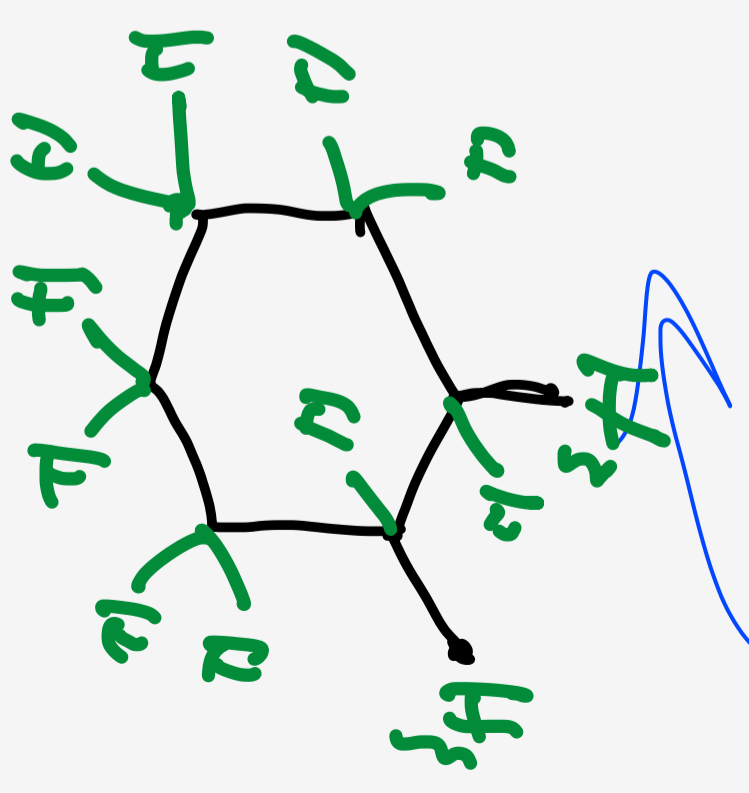
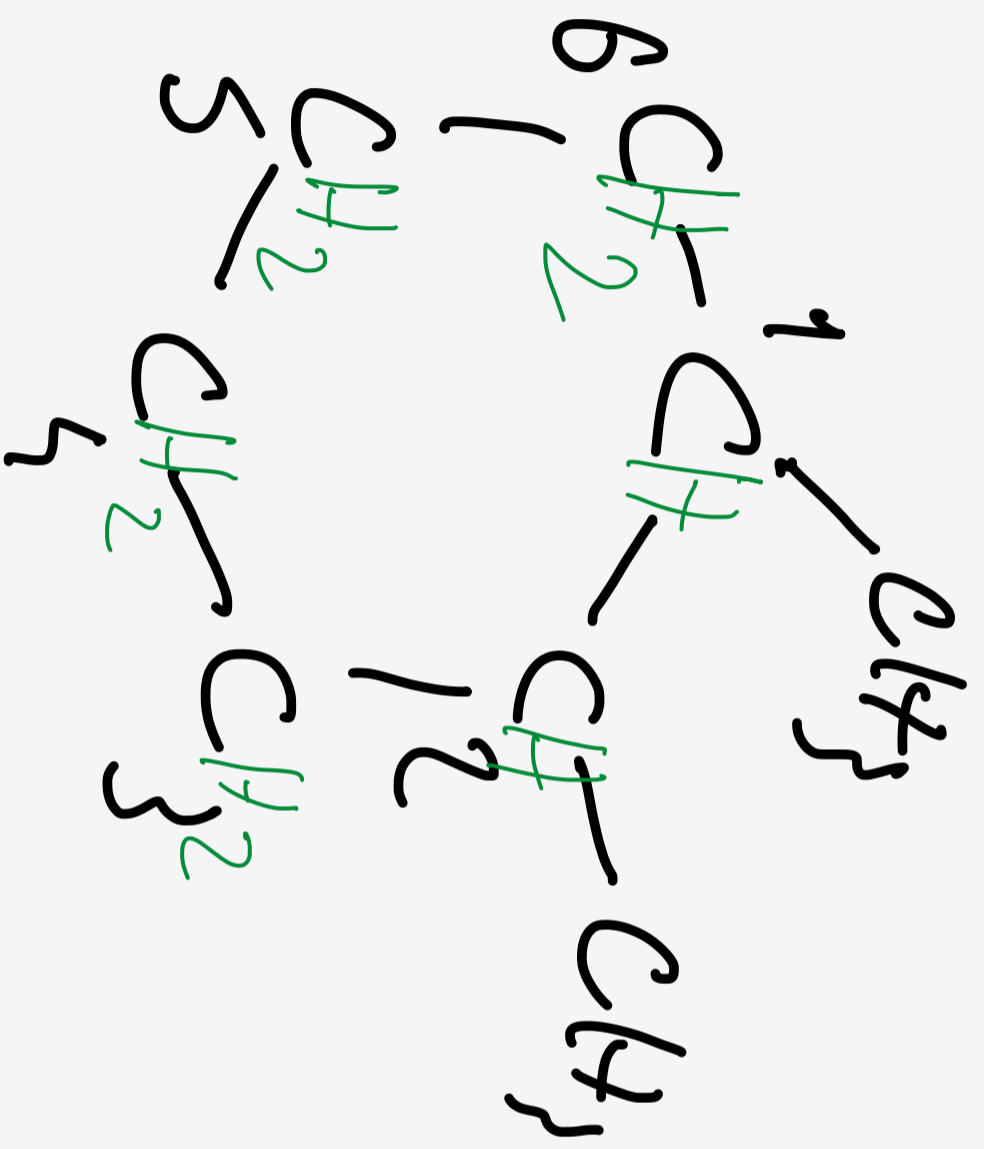
3-ETIL-ESANO

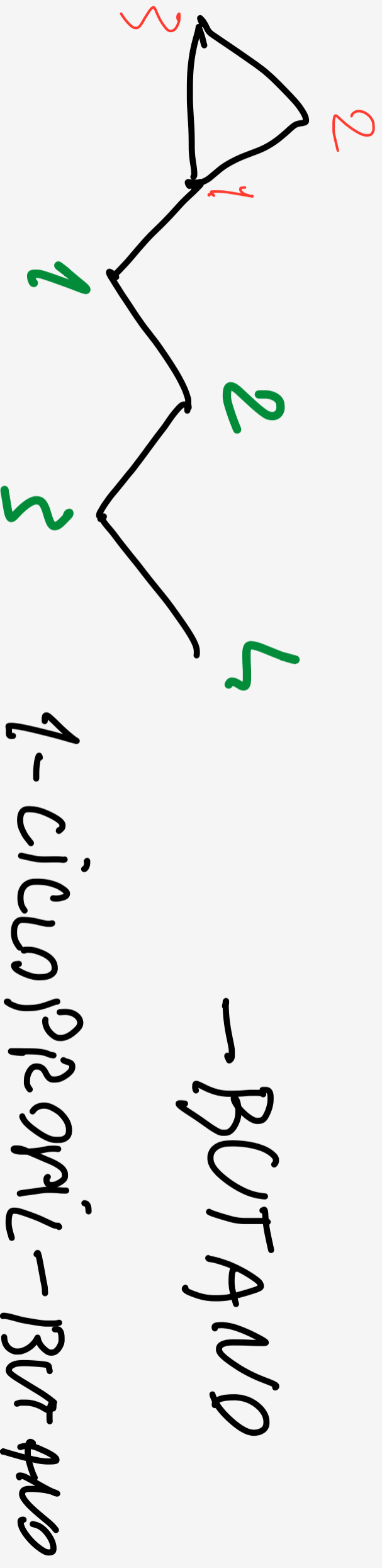
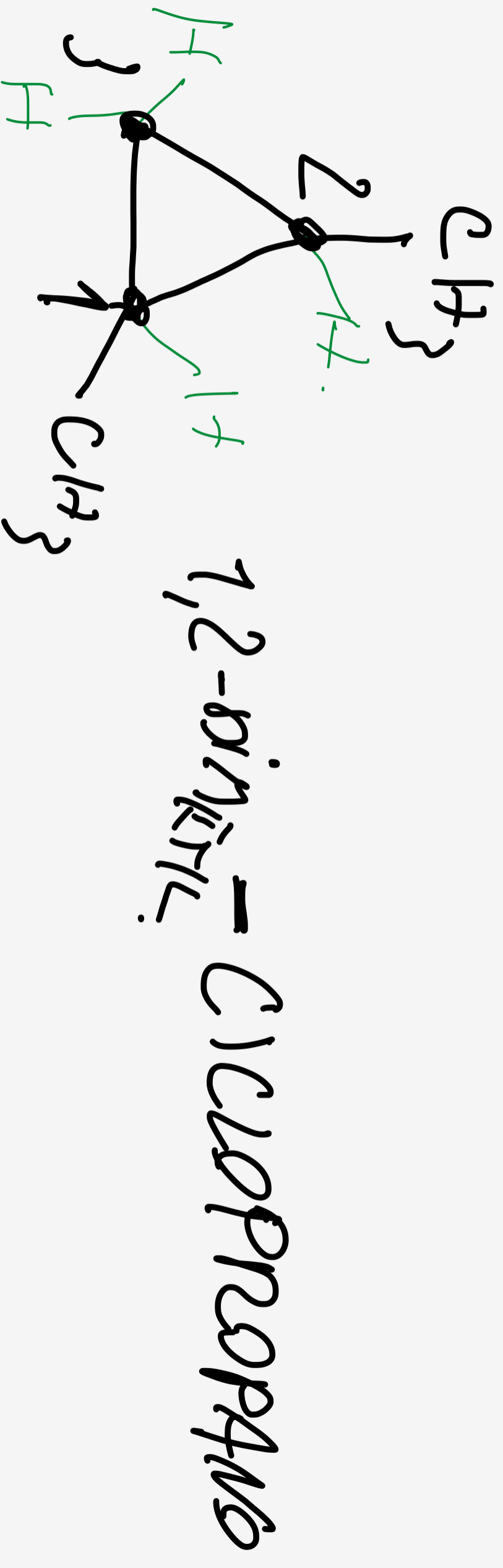


S-ETHYL-2,6-DIMETHYL-OTJANO

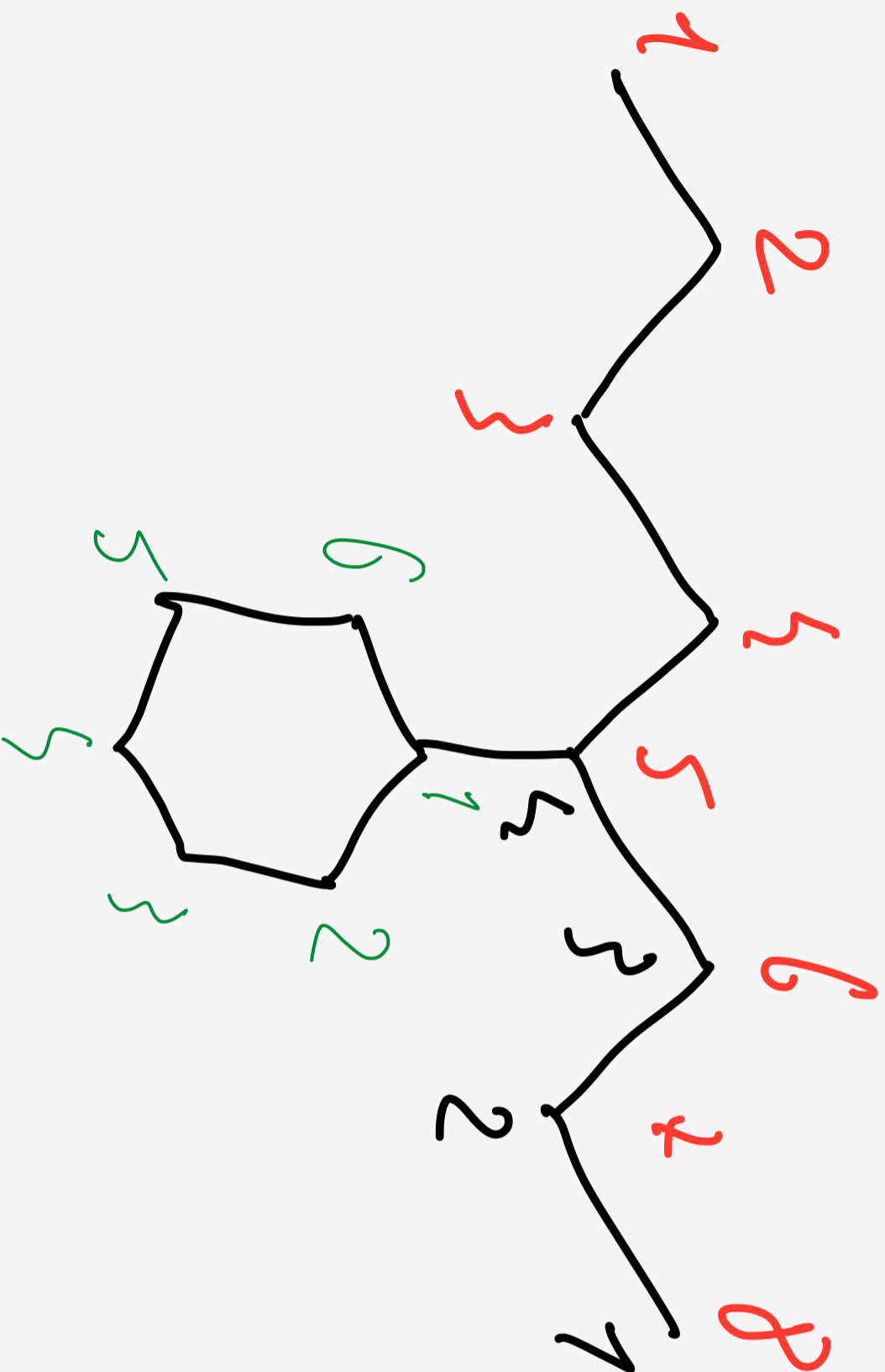


1,2-DIMETHYL CICLOESANO



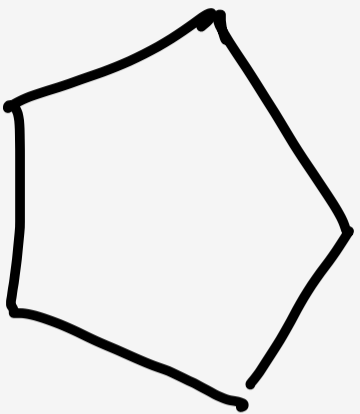


4-CICLOPENTIL - OTTAVO

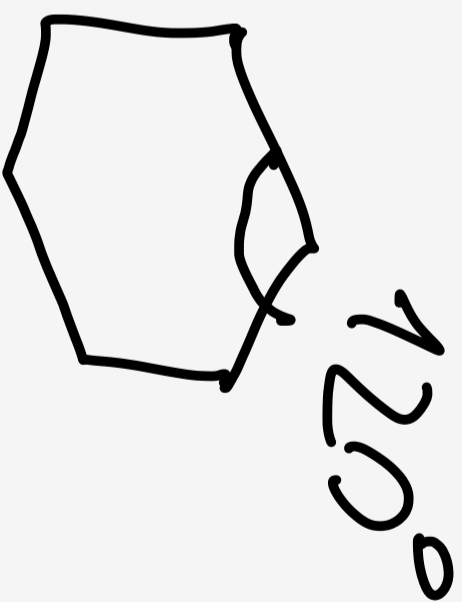




SF AVOPI TO

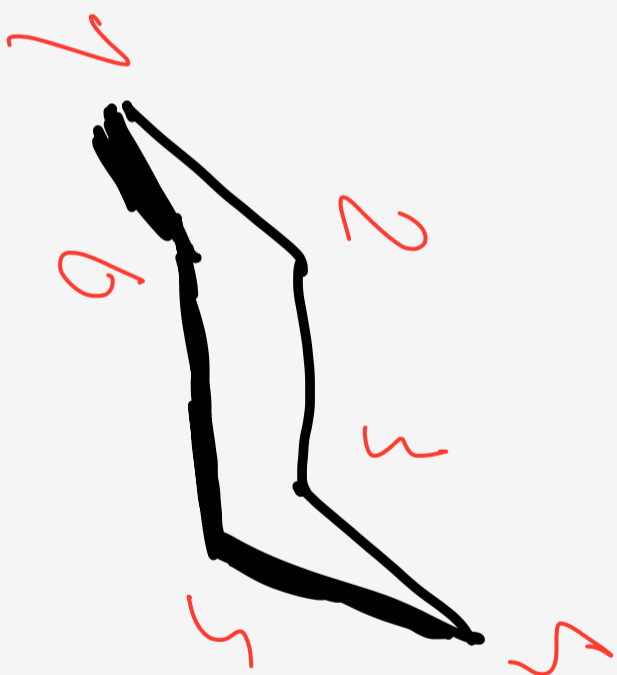
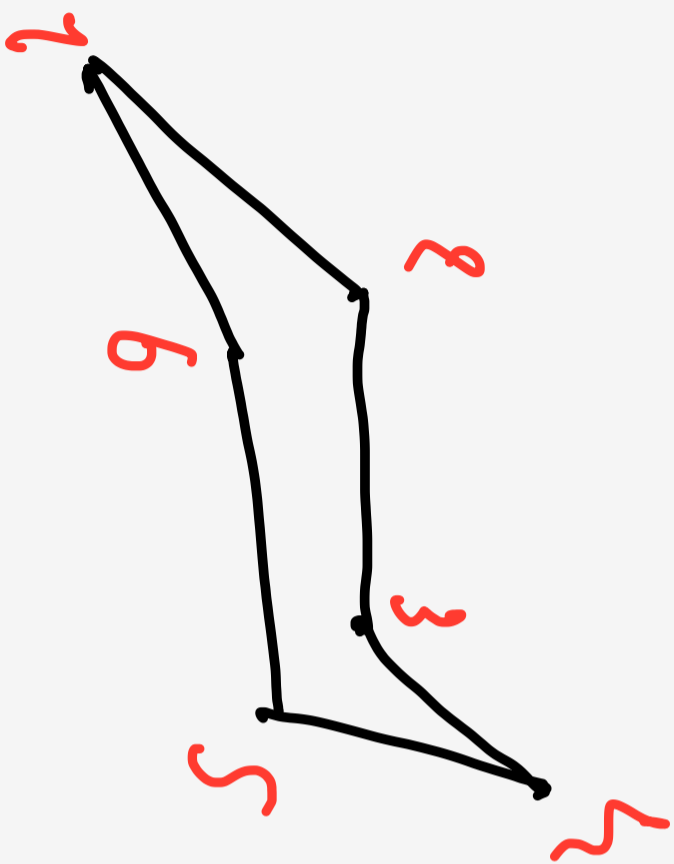
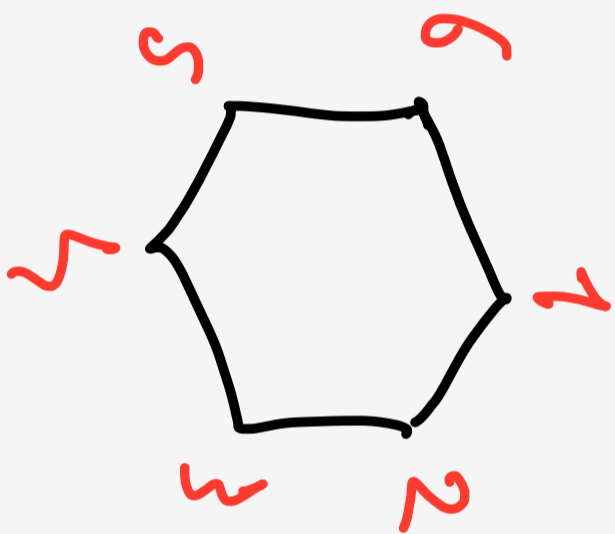


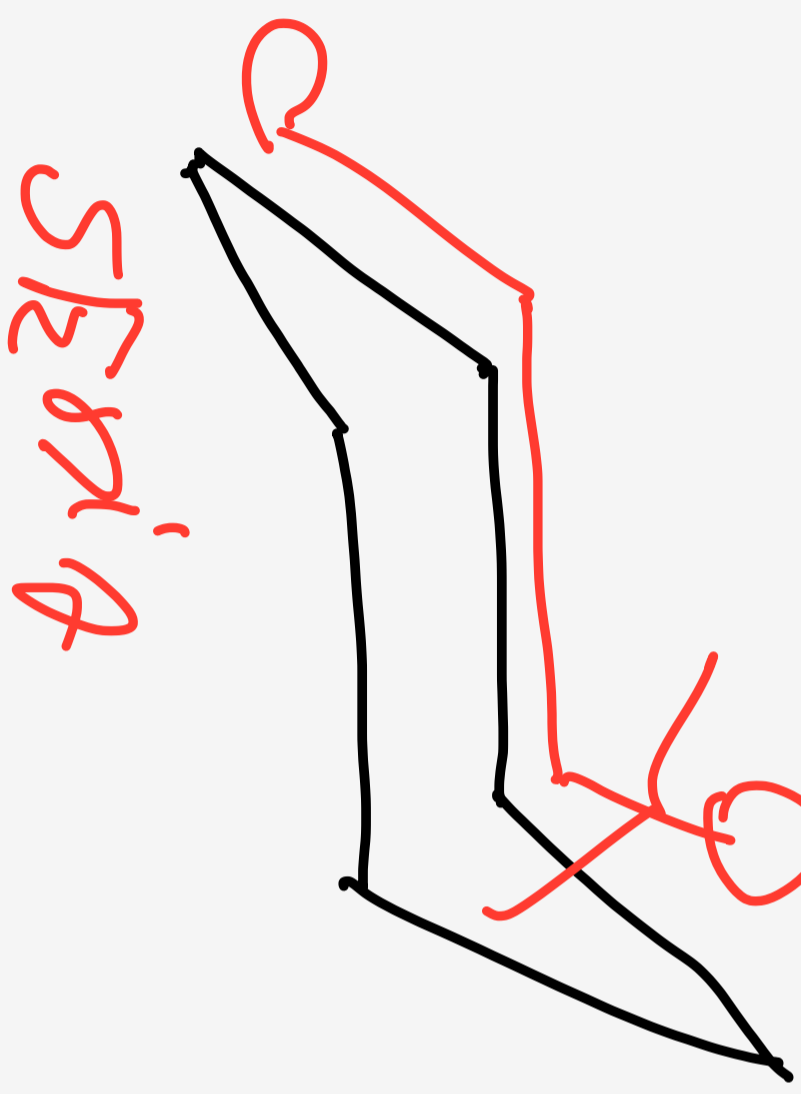
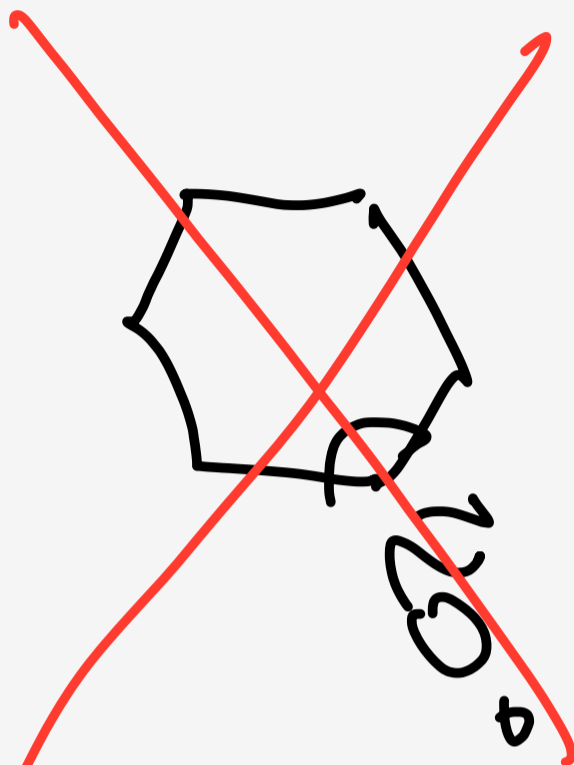
CICLO-PENTANO



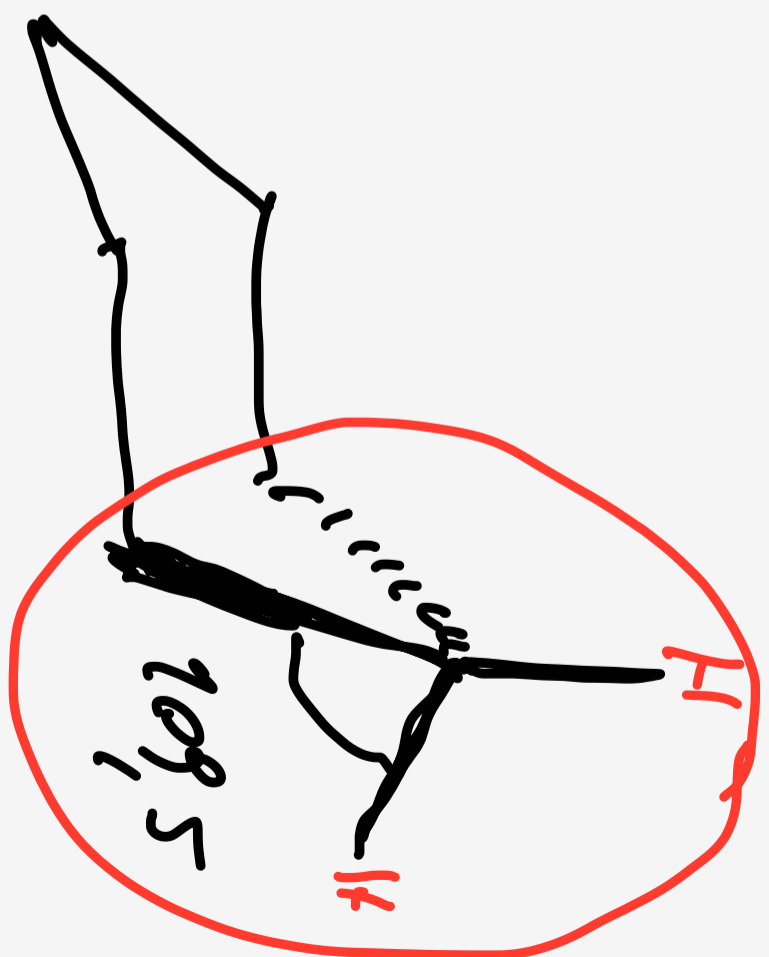
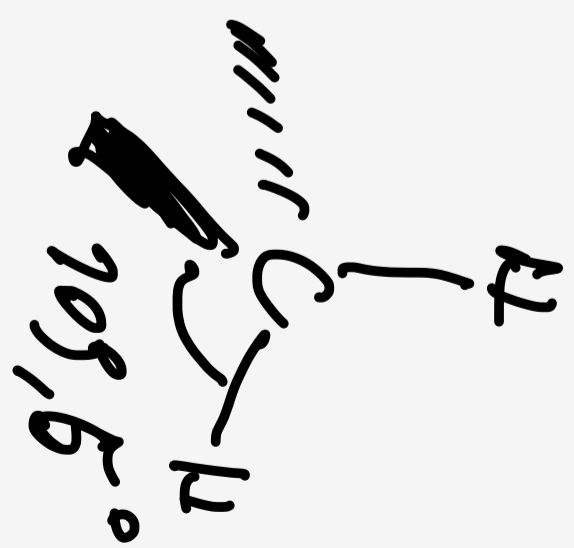
CICLO ESANO

SEPIA

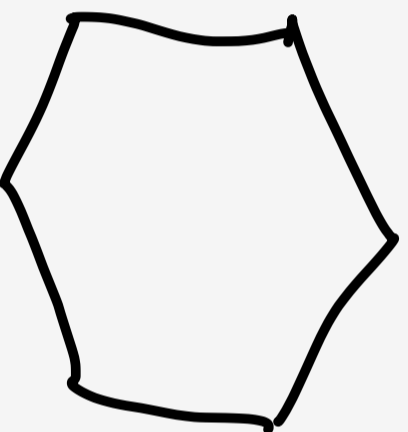




5E87A

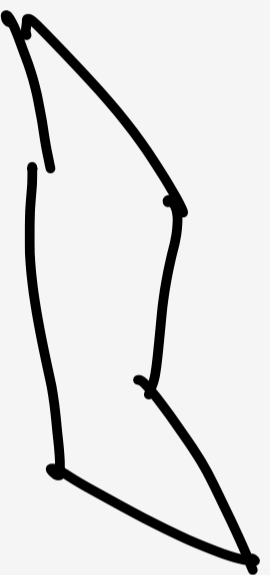


$$\Delta G = \Delta H - T \Delta S \quad \text{ENTHALPIA} \quad \text{ENTROPIA}$$



FAVORITÄ

$$\Delta H = 0$$

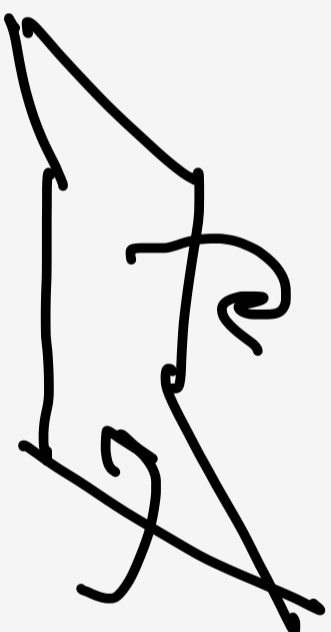
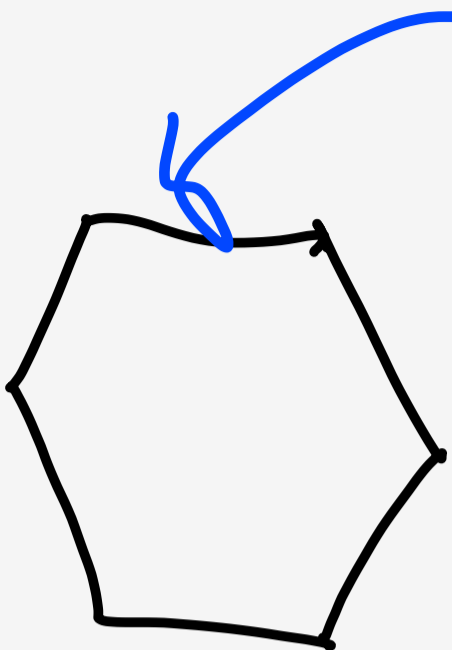


$$G = 12 - TS$$

$$\Delta G = \Delta H - T\Delta S$$

Entropy

$$\Delta H = 0$$



BASSA +

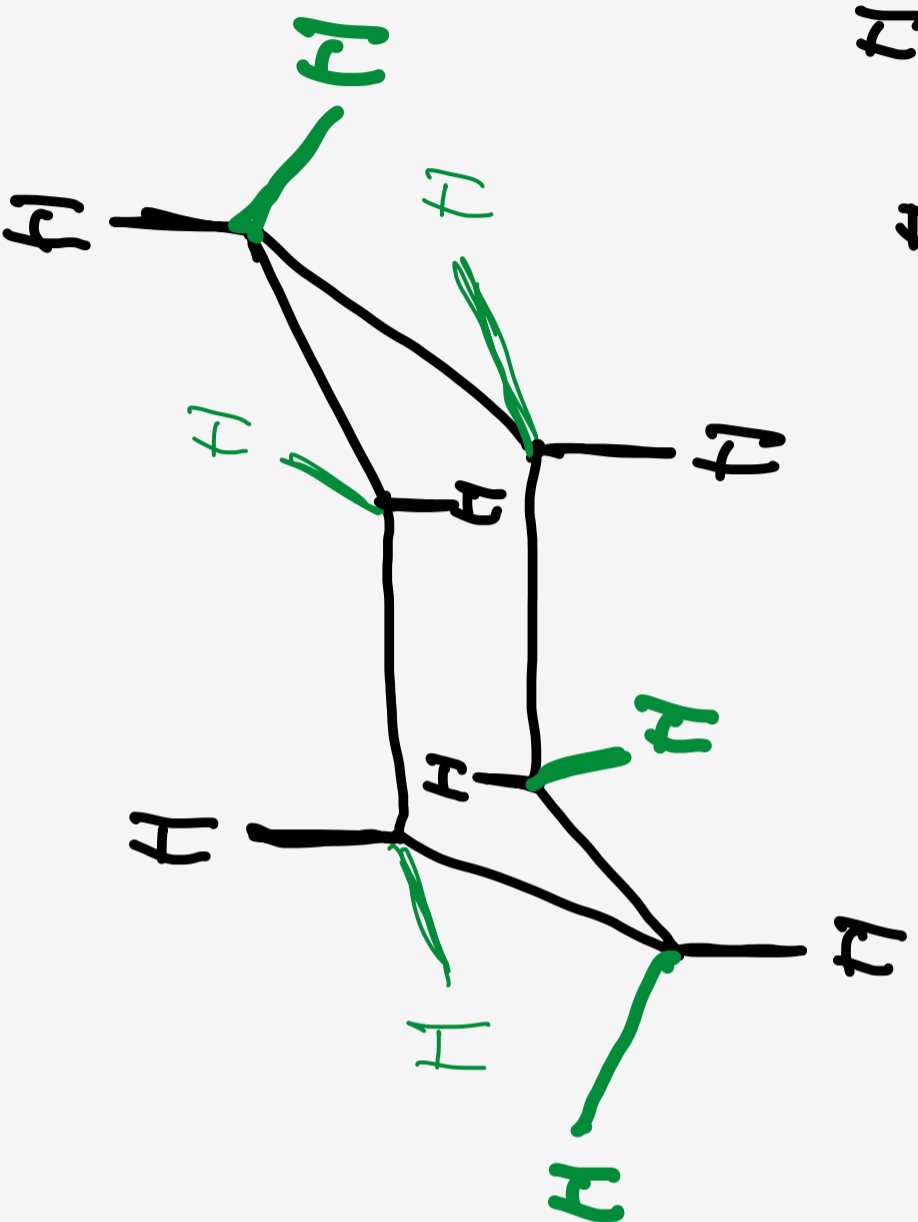
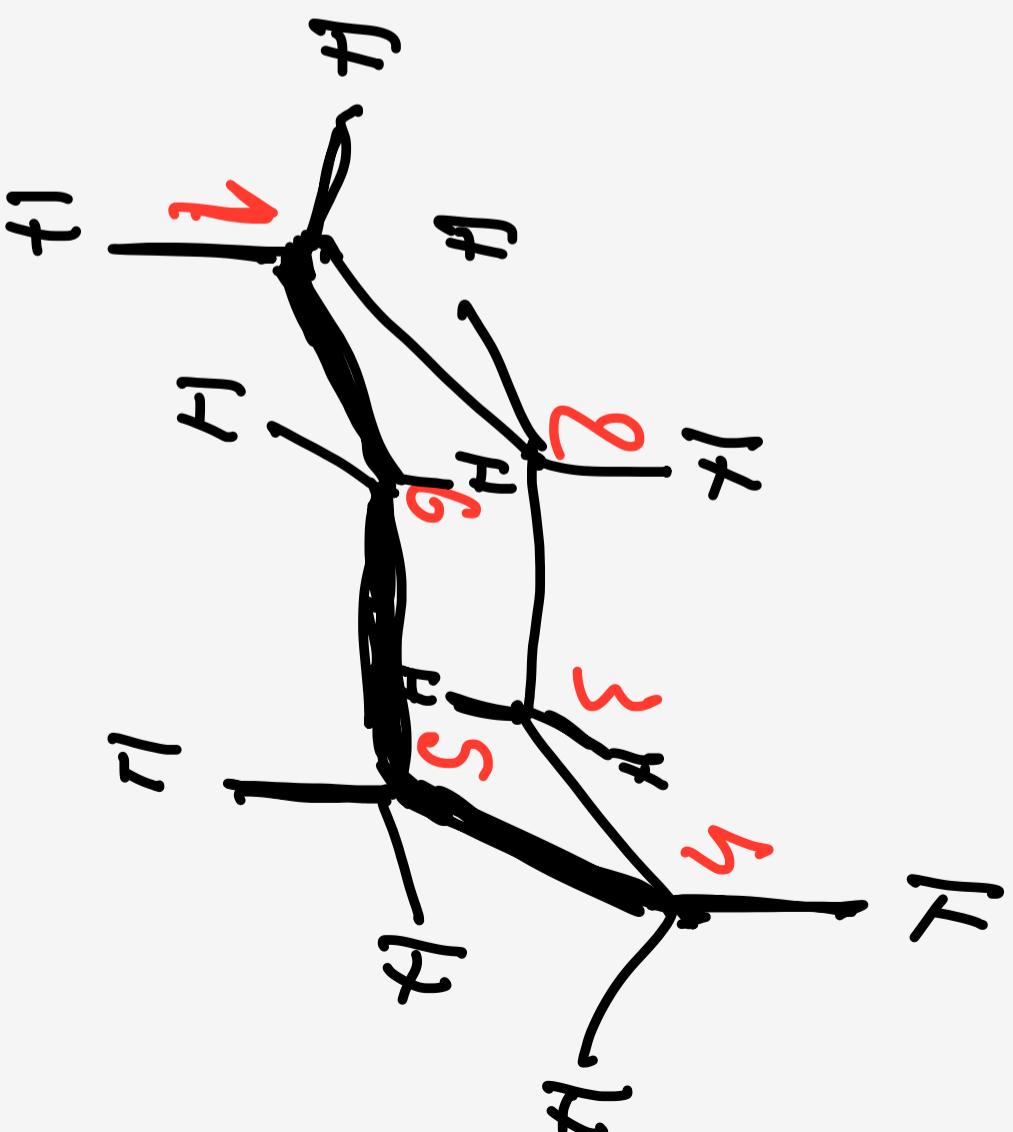
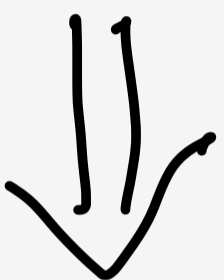
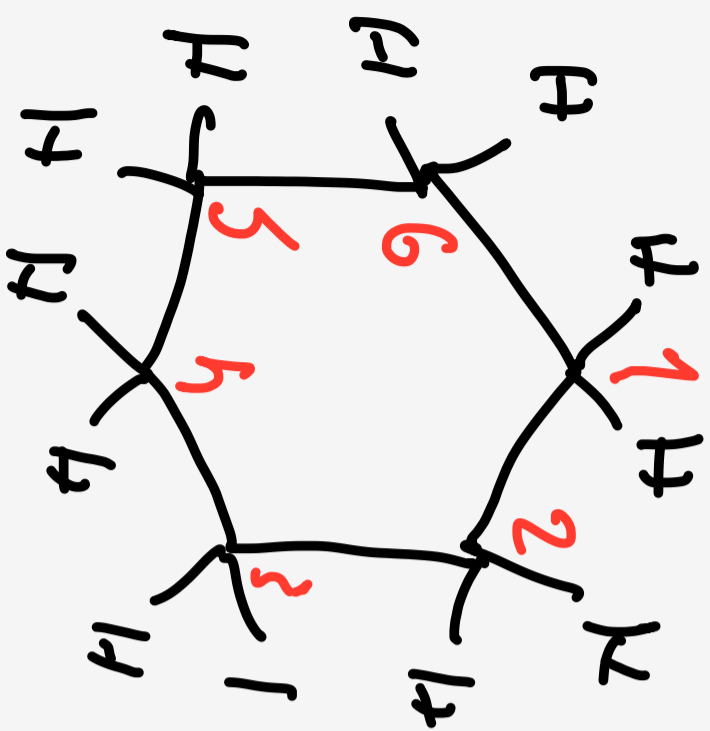
BASSA MELI

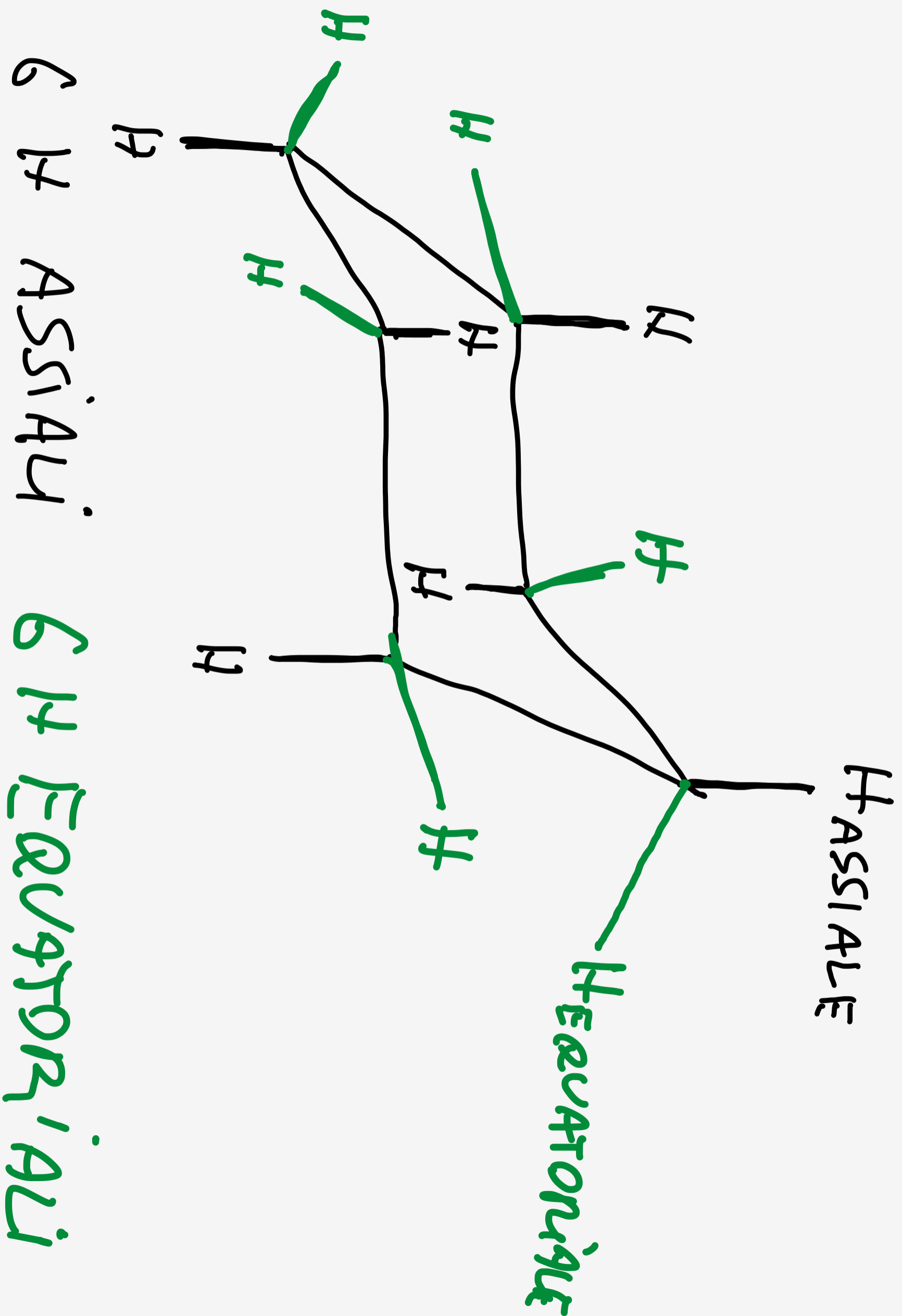
ESANO

Entropia BASSA

S ↑

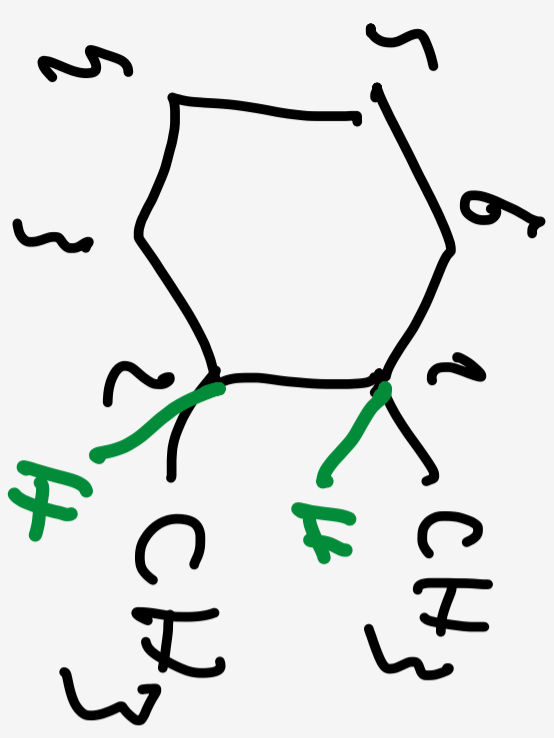
CICLO E5S4NO



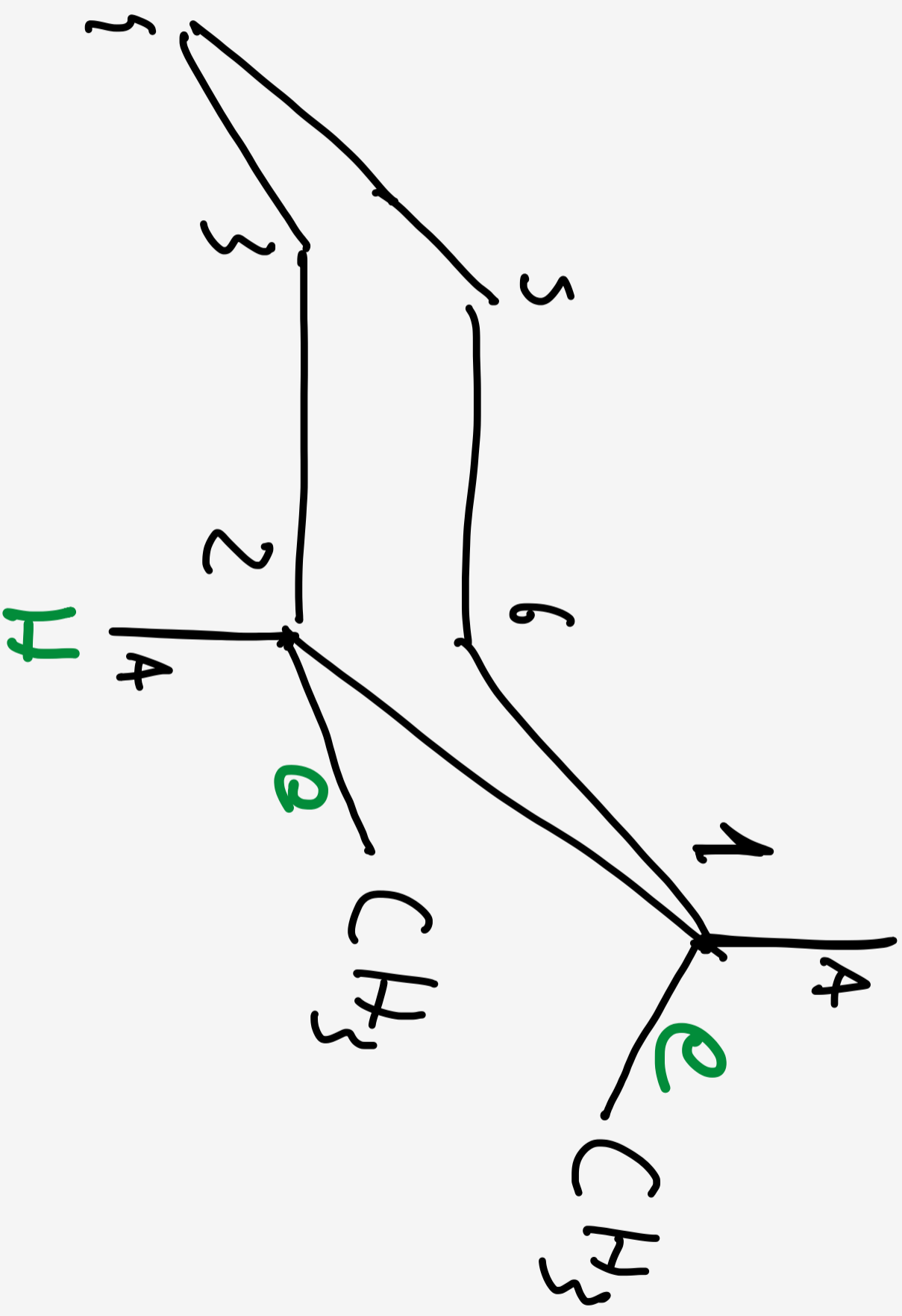


6 H ASSIALE 6 H EQUATORIALE

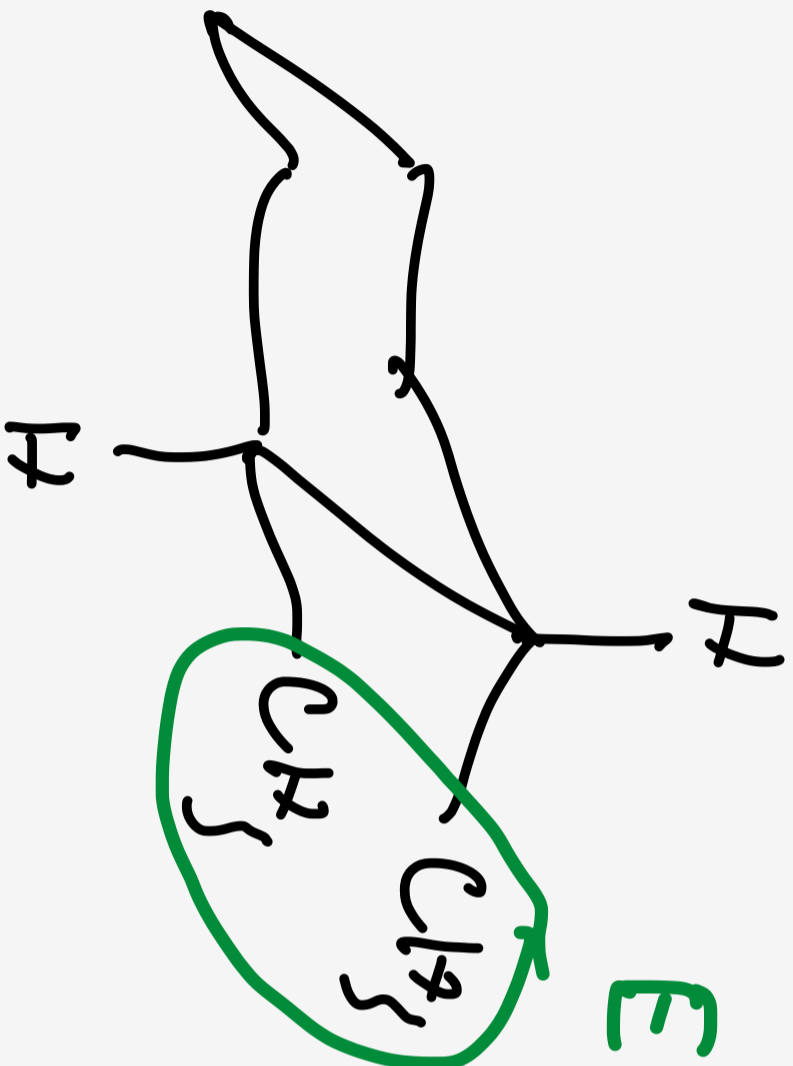
1,2-DIMETHYL-CYCLOHEXANE



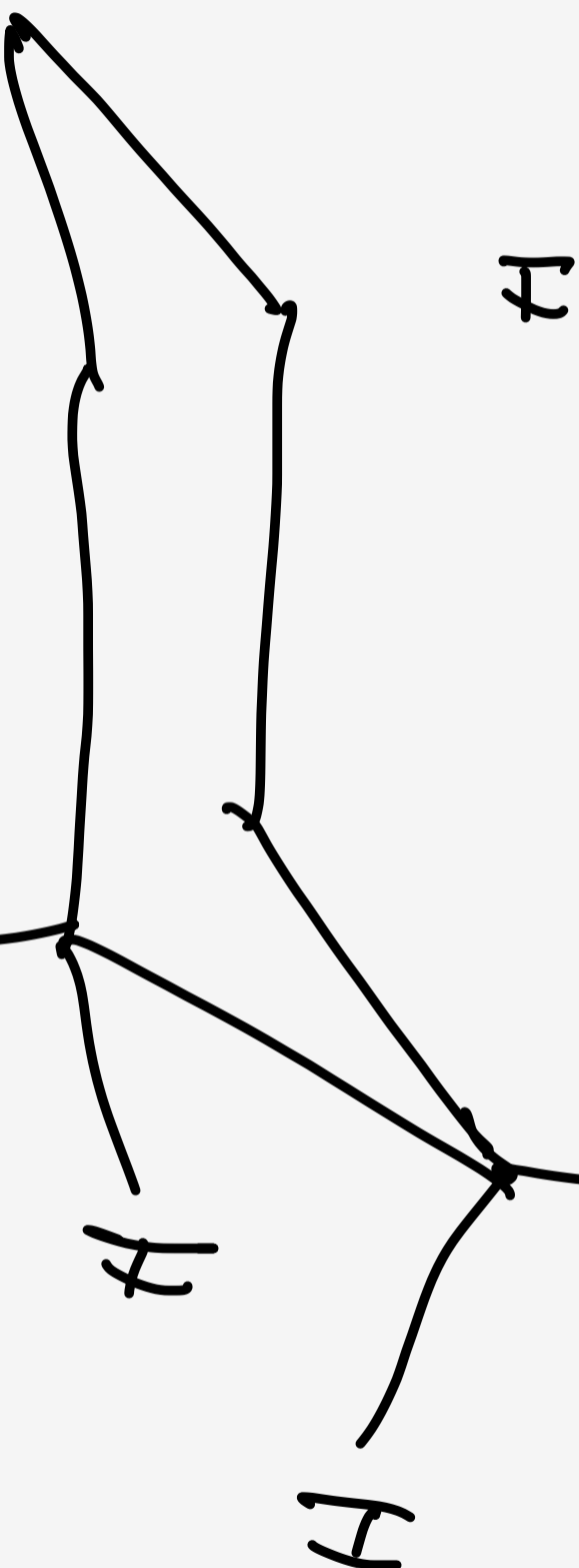
H



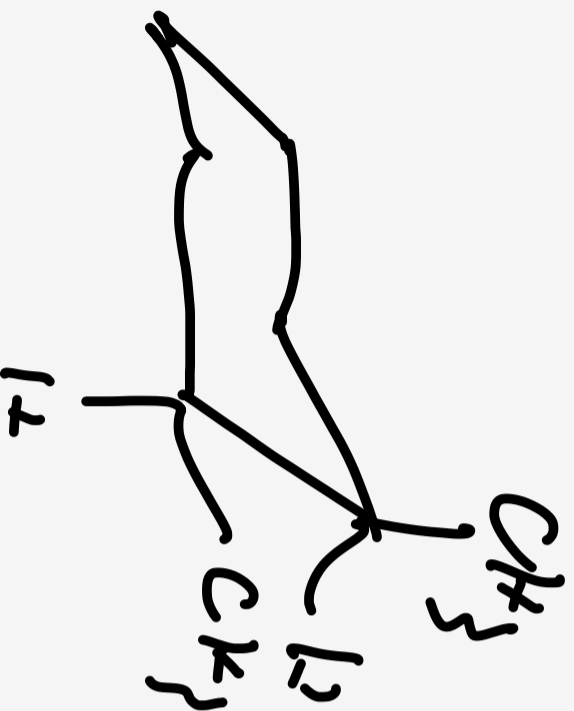
EQUATORIAL

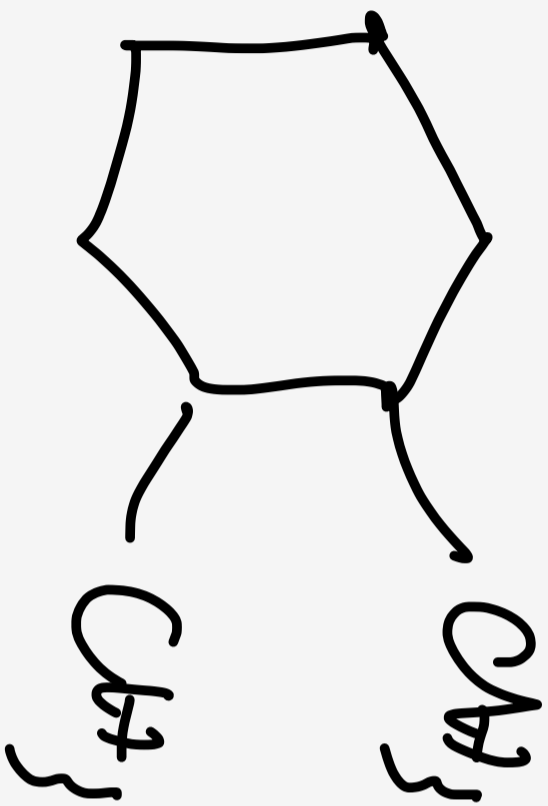


AXIAL



AXIAL





$$SE = 19$$

$$SC = 6$$

$$\rightarrow \Delta S:$$

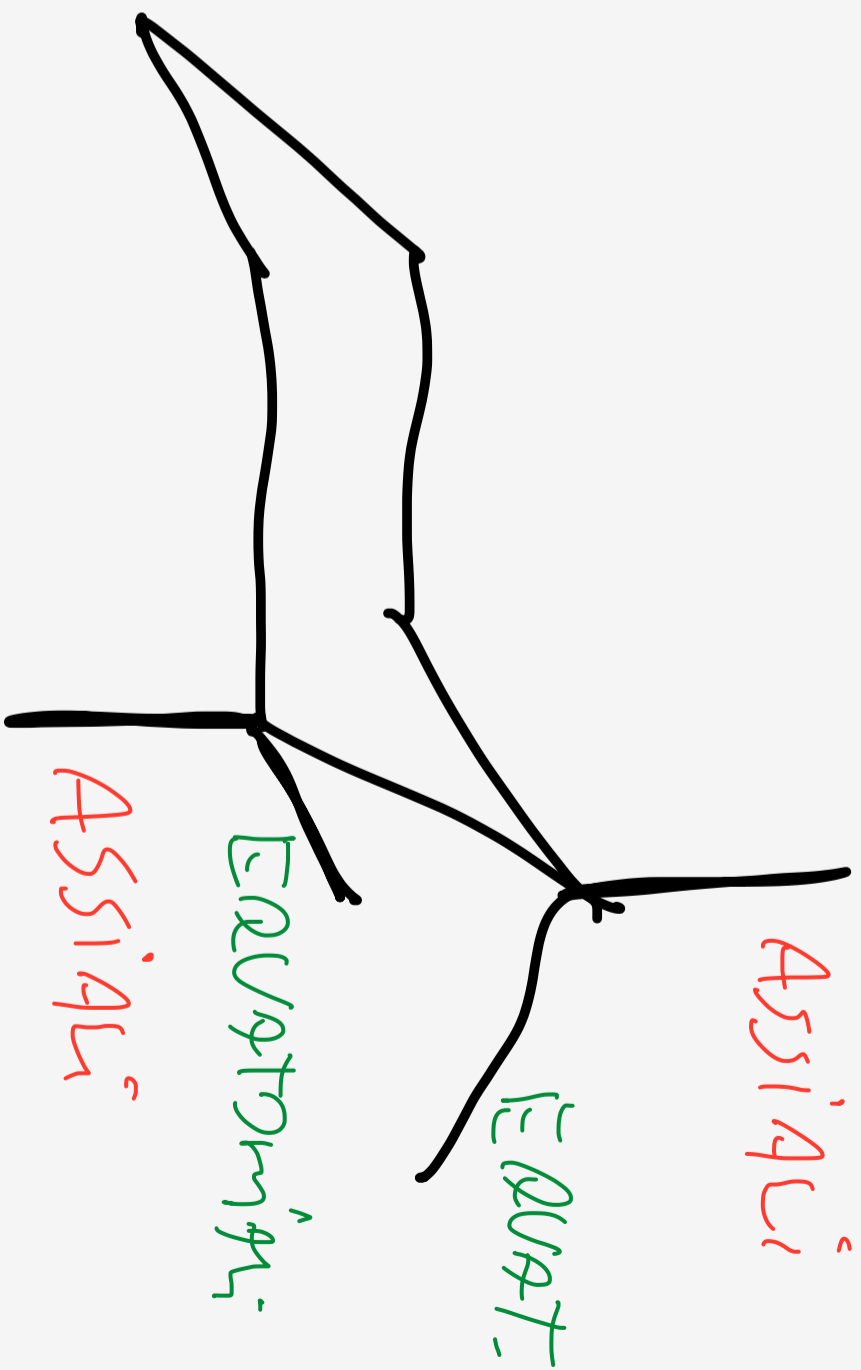
$$SE - SC$$

$$SC - SE$$

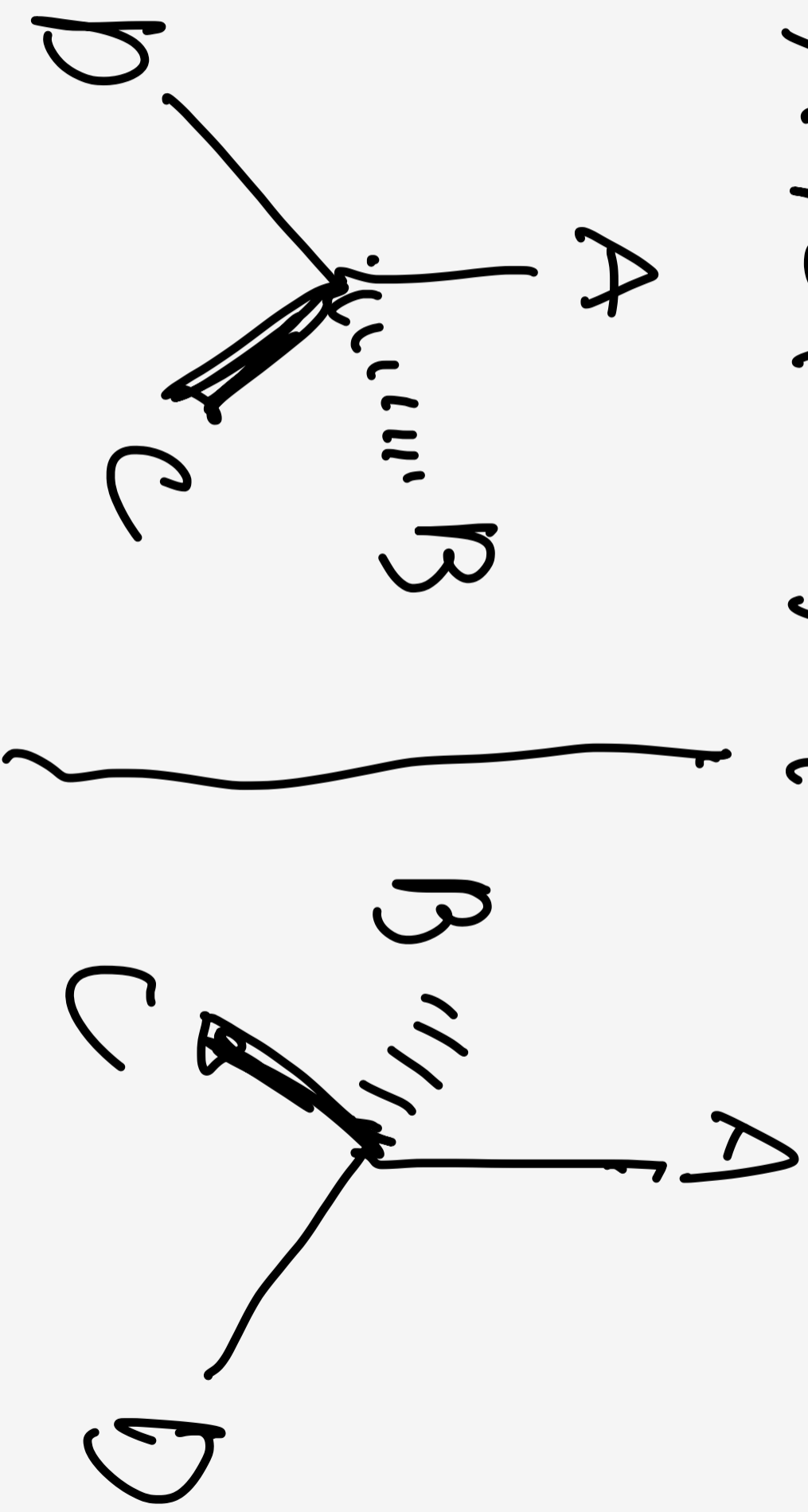
?

+

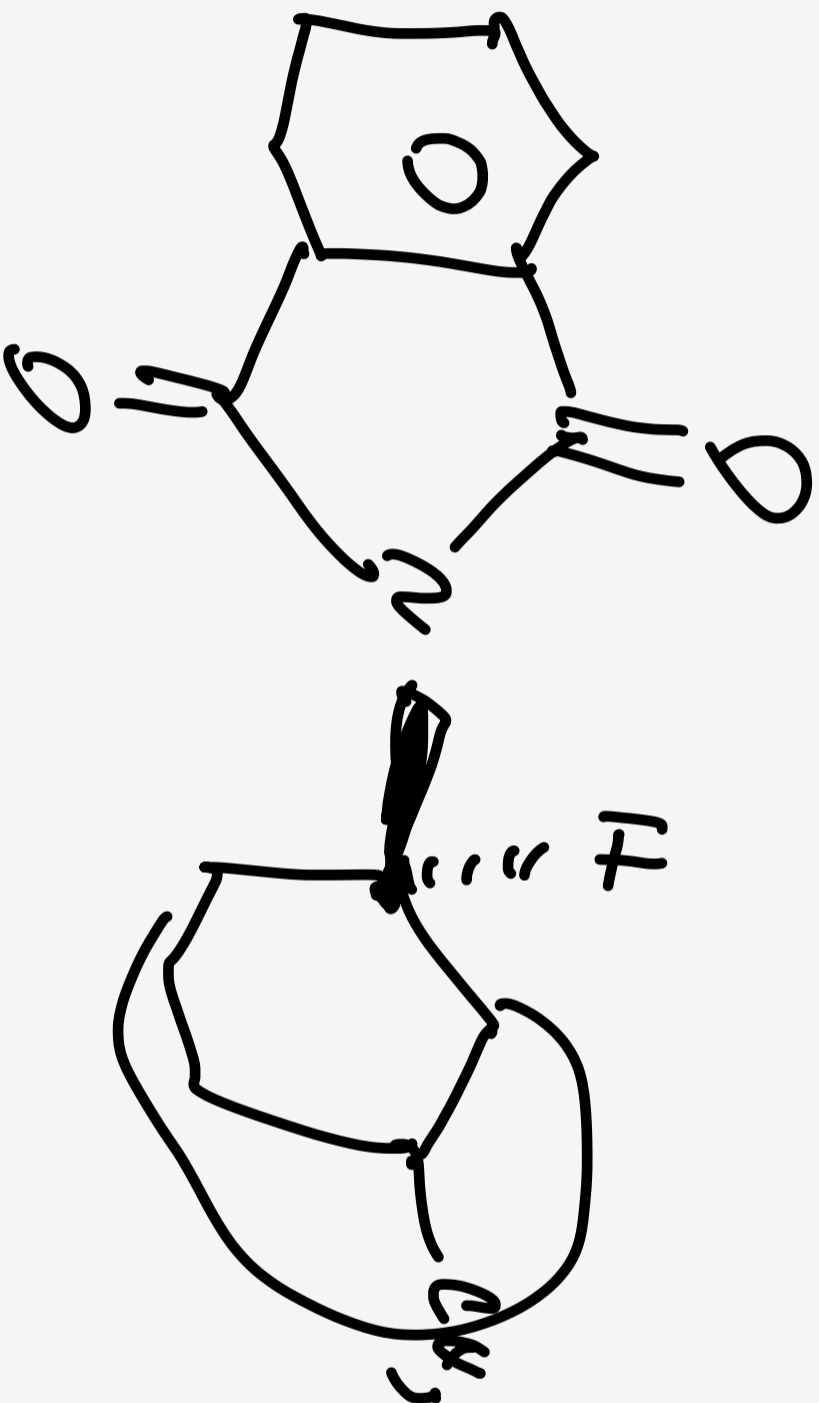
ΔG



CHAIN-CLIFF



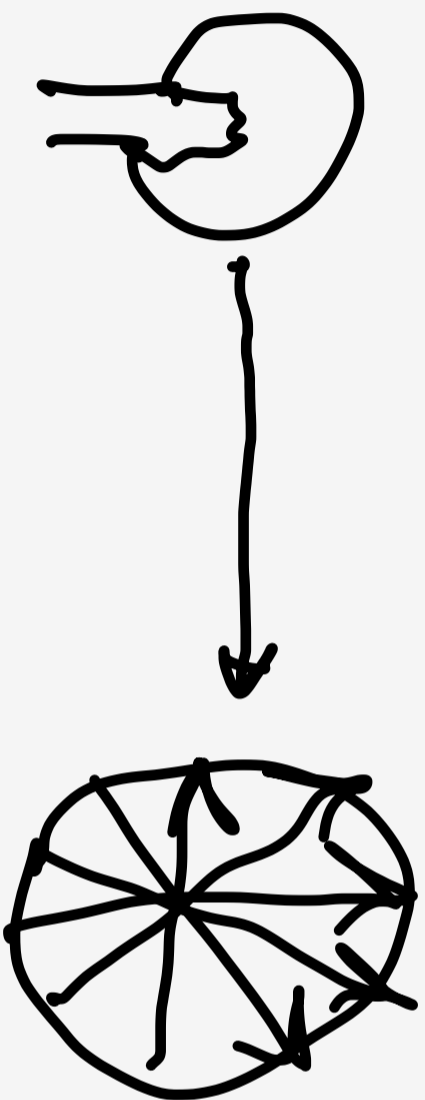
EVANUATION
R S



50% R. \rightarrow Atividade Antihelmíntica

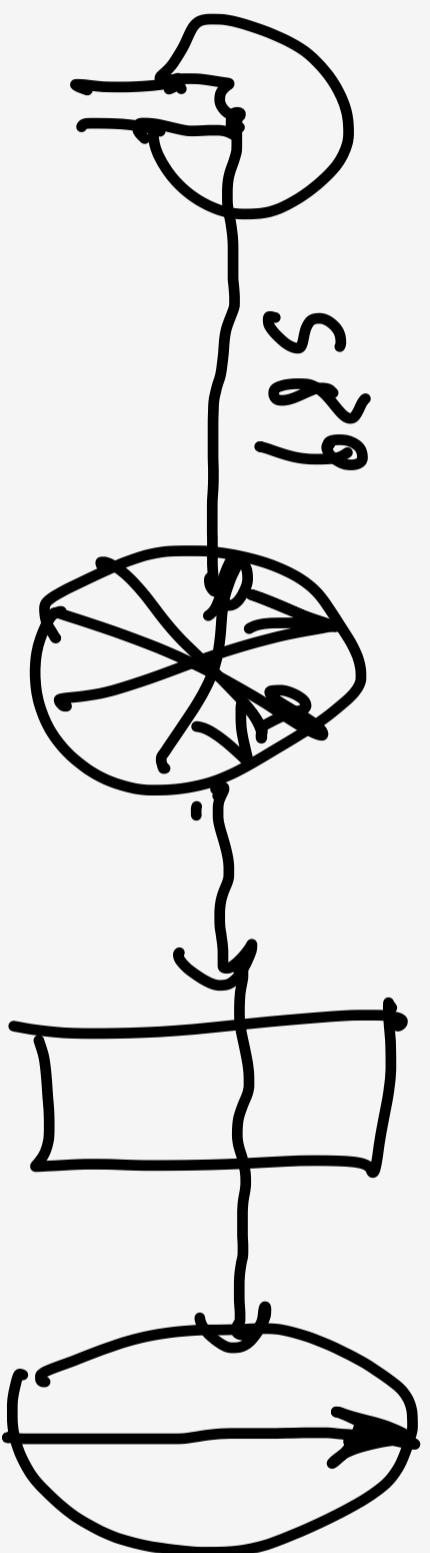
50% S \rightarrow THIATROGEMO

LOCIE POLAFIZI ZETA



WCFE mianca dinere hr.

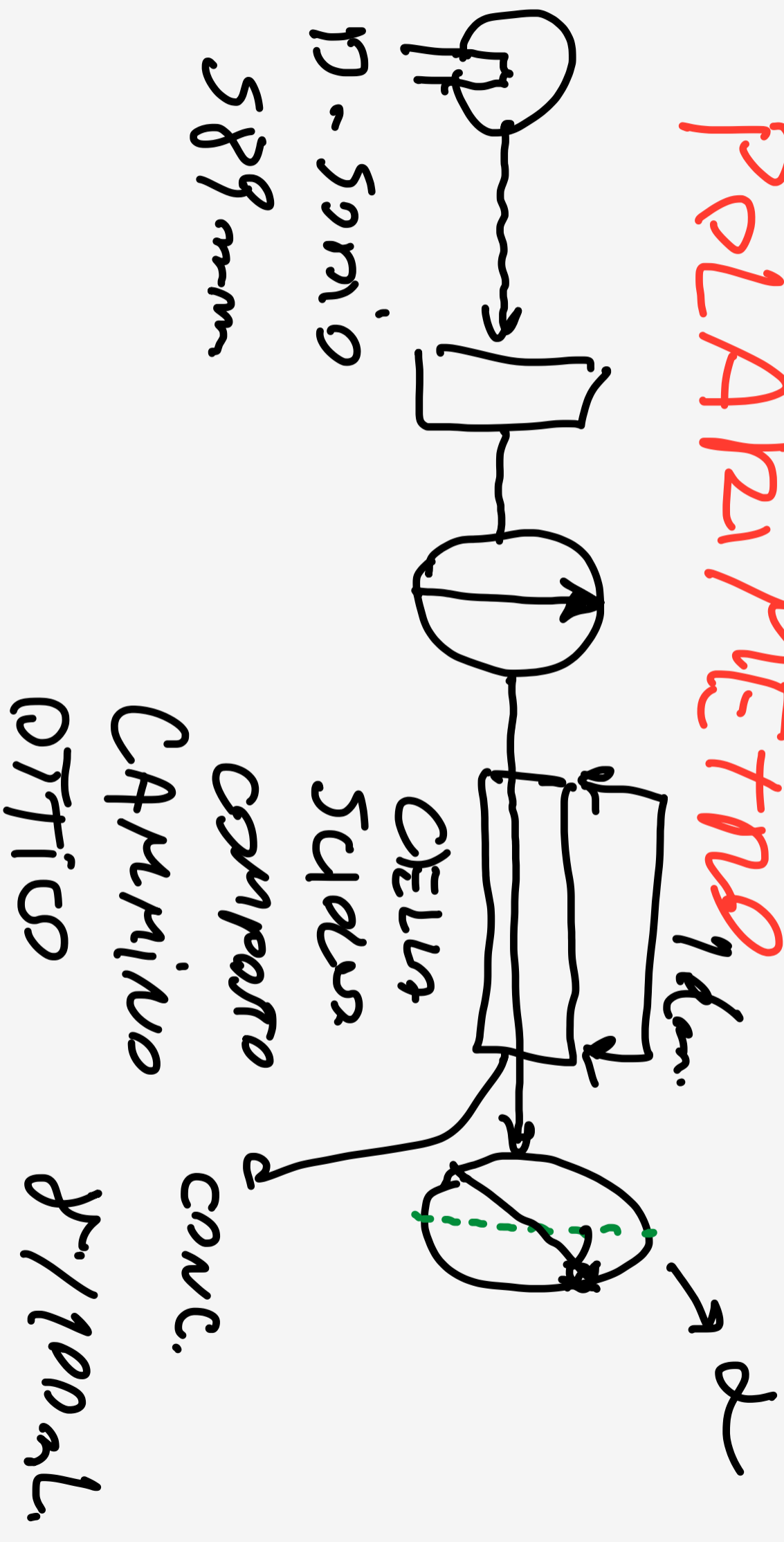
Sonio → SP9 mm



LEUTTE

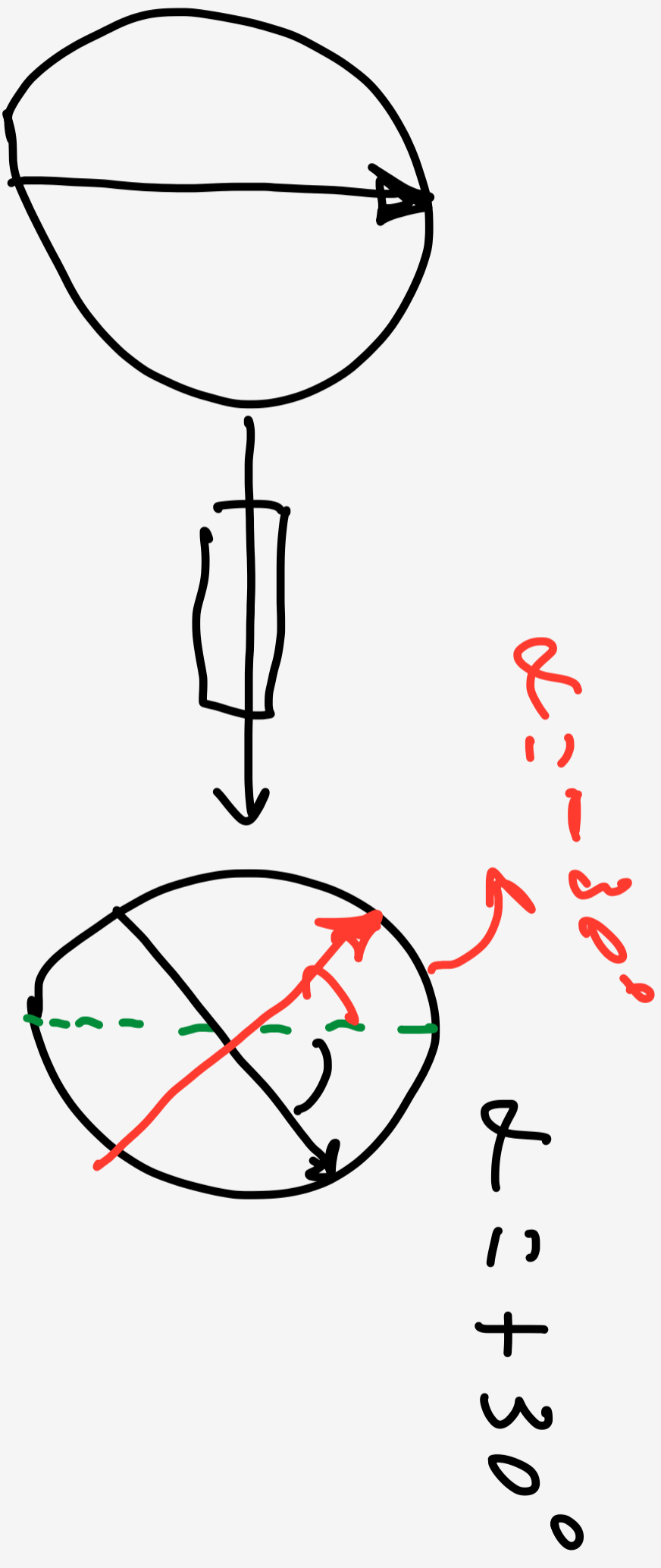
POLAM ZETA

POLAPIMETRO



Сампасто
Селла
оттисо
Саммино

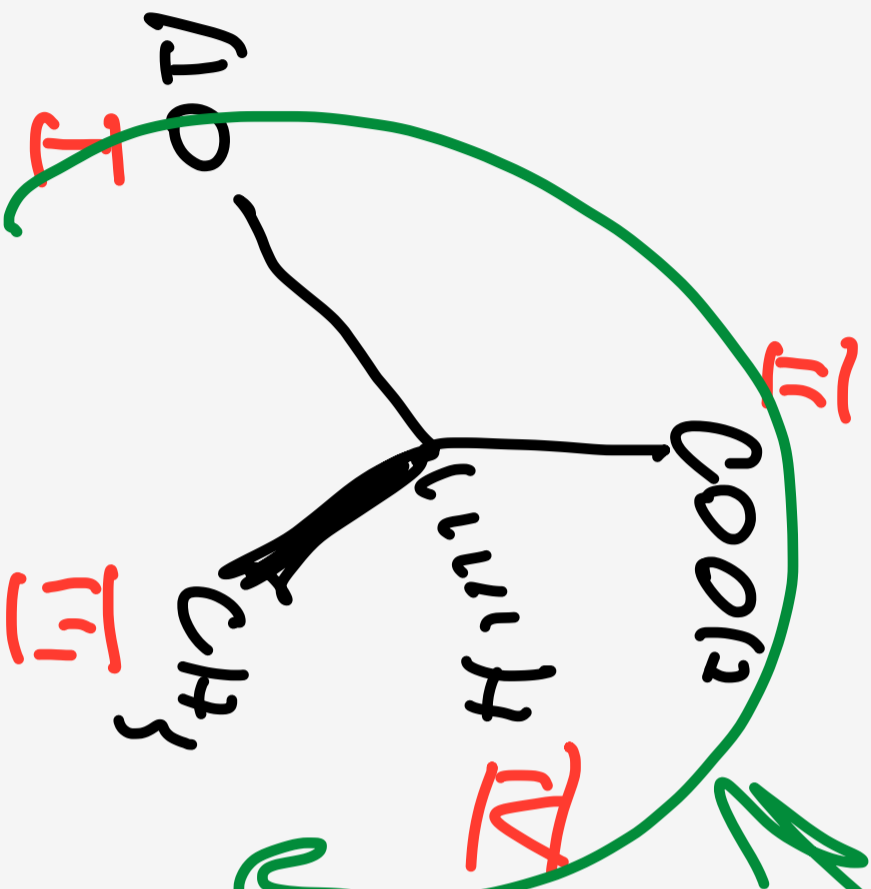
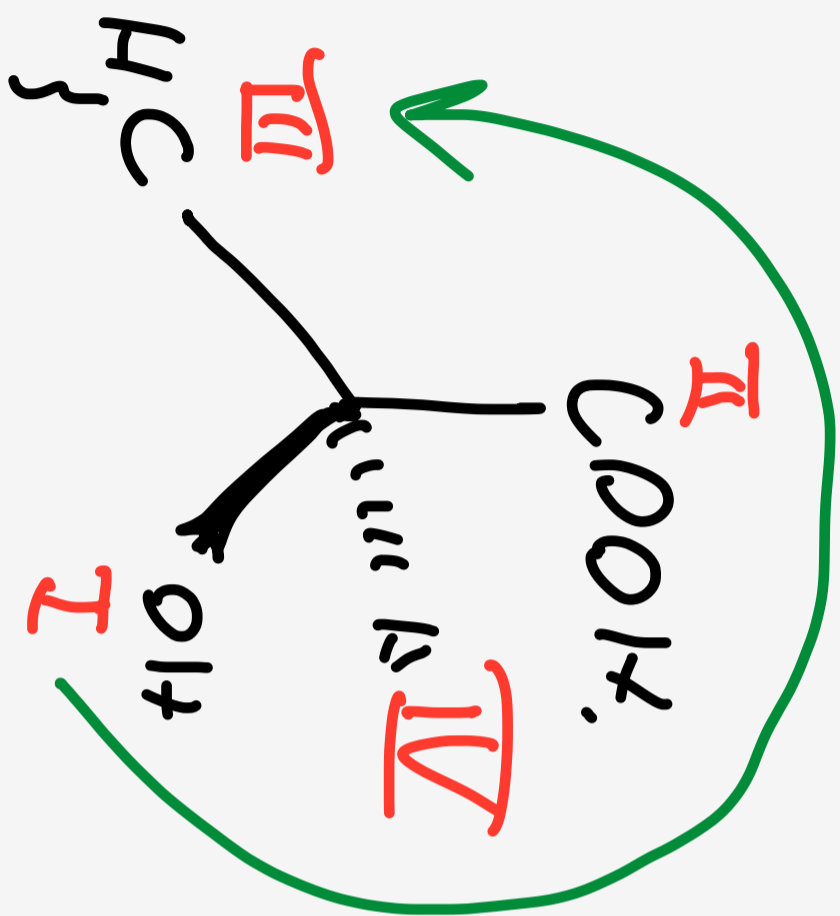
2/100al.



Porządkowanie Specyfika

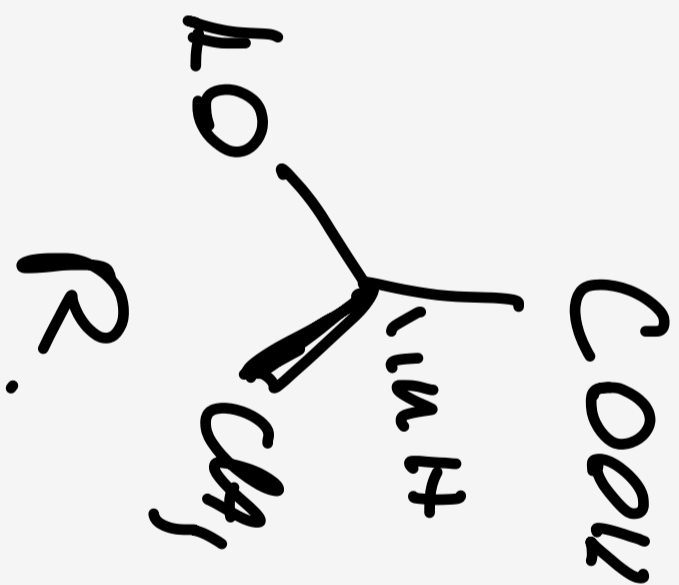
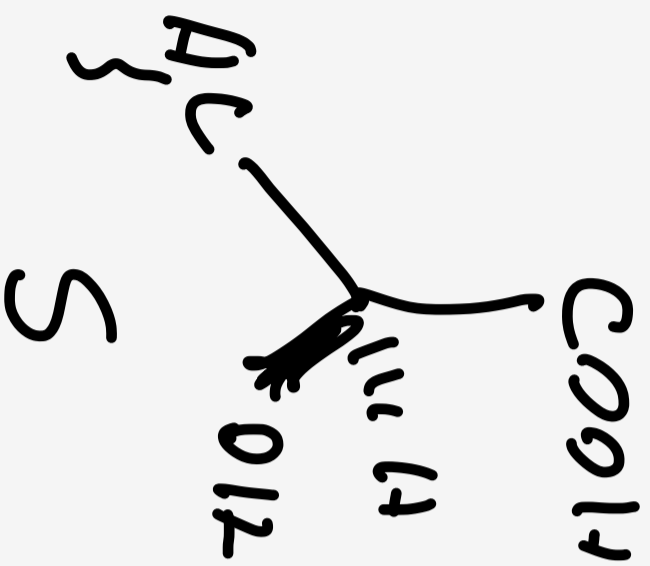
$$[\alpha]_D^{25^\circ} = \frac{\alpha}{\lambda \cdot d \cdot c}$$

SOLVENTE



Acido-(+) - **R** - Lattico

ruota il piano
 della luce
 polarizzata +



SS°

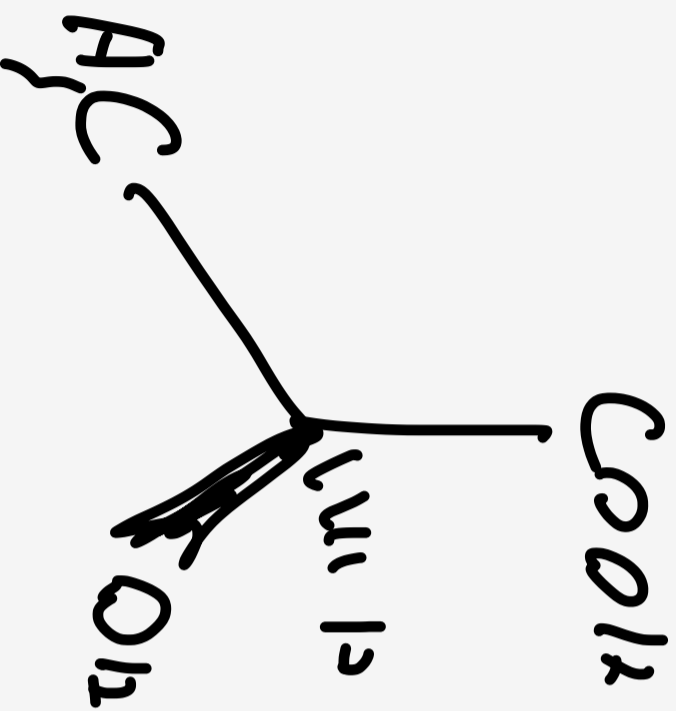
-SS°

+SS°

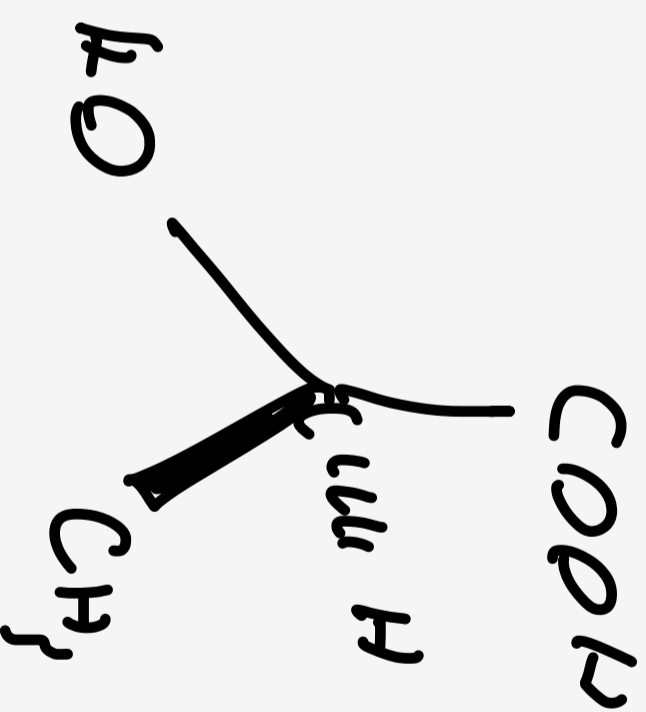


$\beta = +SS$

$[\alpha]_D^{25} = -SS$



$[\alpha]_D^{25} = -55$



$[\alpha]_D^{25} = +55$

50% 50% = MISCÉLAGO
 RACÉMICA

$[\alpha]_D^{25} = 0$

25 75 = SCALÉMICA
 $[\alpha]_D^{25} = +25$

Eccellso ENA MionMEnico

ee

$$ee = \frac{[f] \text{ Miscela}}{[f] \text{ Composto}} \times 100$$

puhd.

Ac Lattico puho - 55.

$$[f] = -55$$

$$ee = \frac{55}{-55} \times 100 = 100\%$$

$$[x] = -20.$$

$$EE = \frac{-20}{-55} \times 100 = 36\%.$$

$EE = 0 \rightarrow$ MISCELLANEOUS

$EE = 100 \rightarrow$ EQUATIONING

$0\% < EE < 100\% \rightarrow$ MISCELLANEOUS



ETANO

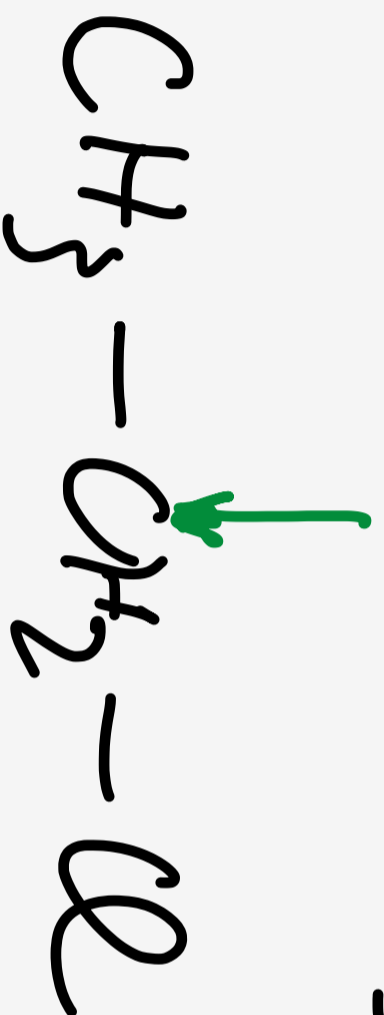
PARAFINICA

CLORO

ETANO

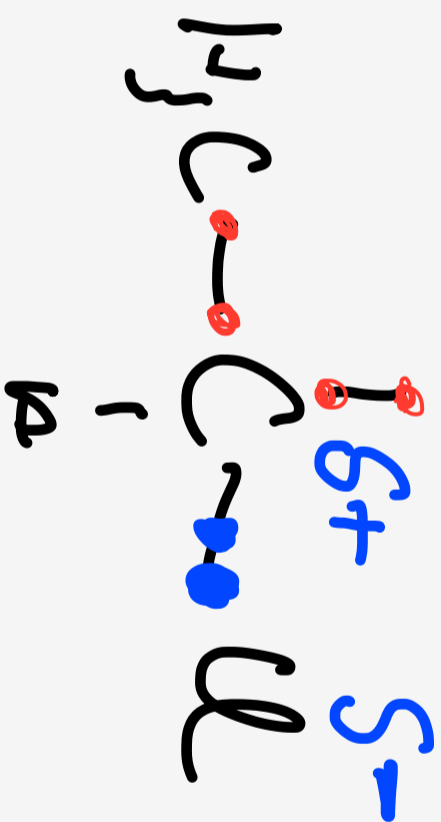


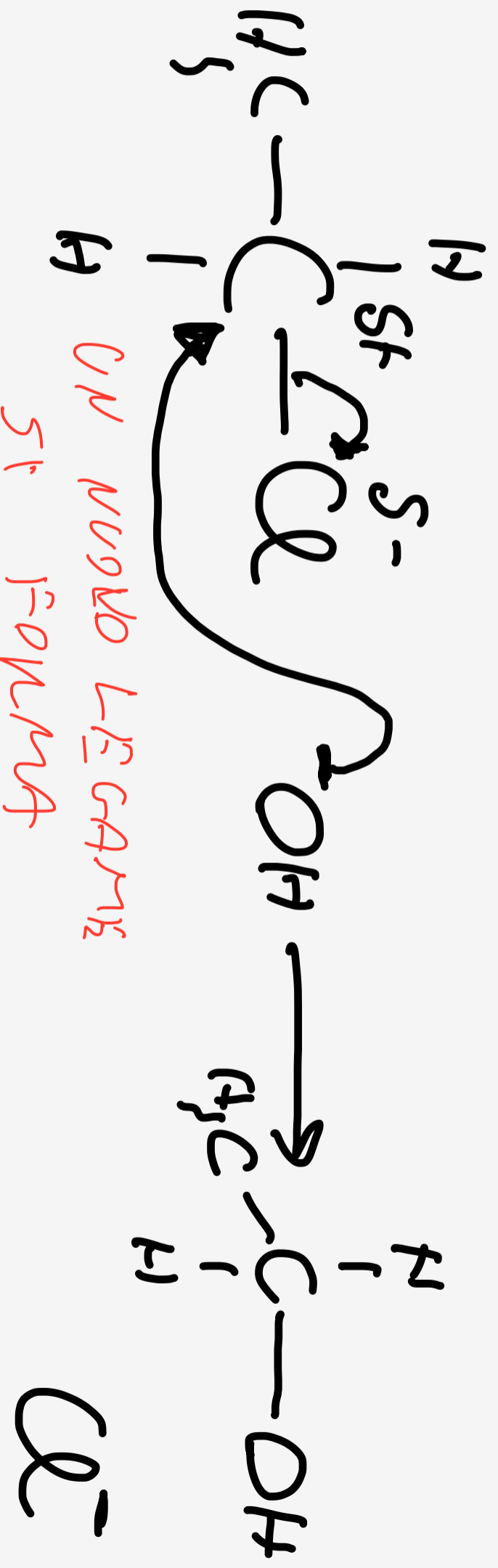
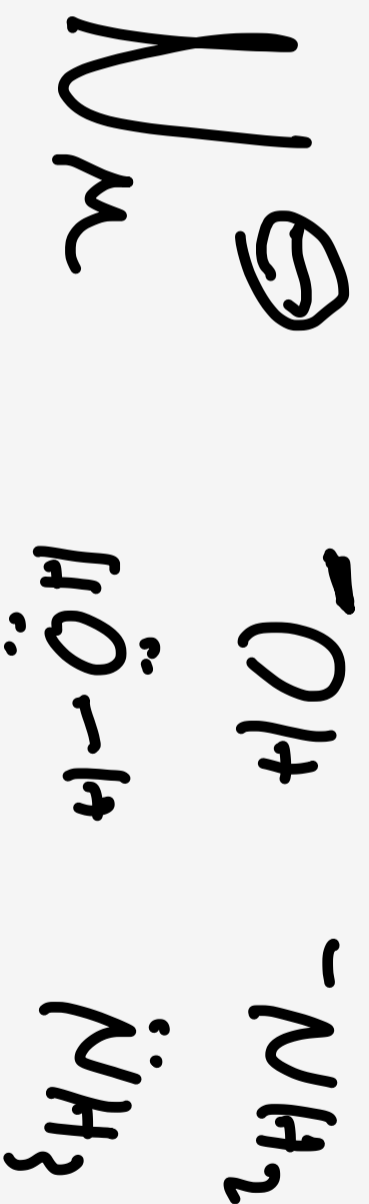
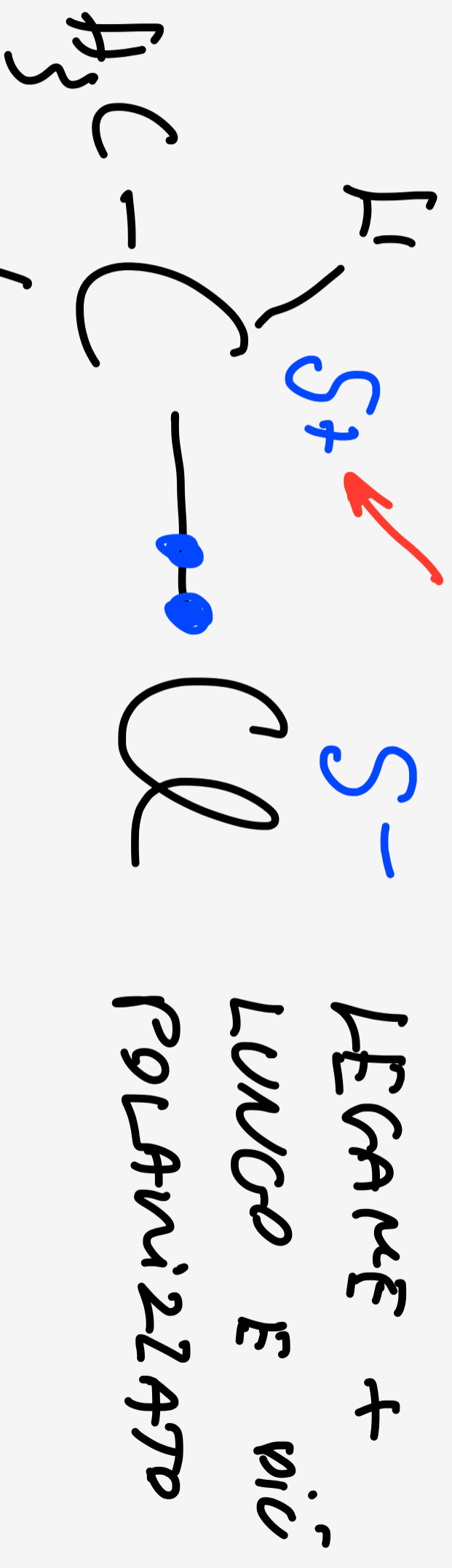
ALCOGENORIPRI ALCHILICI

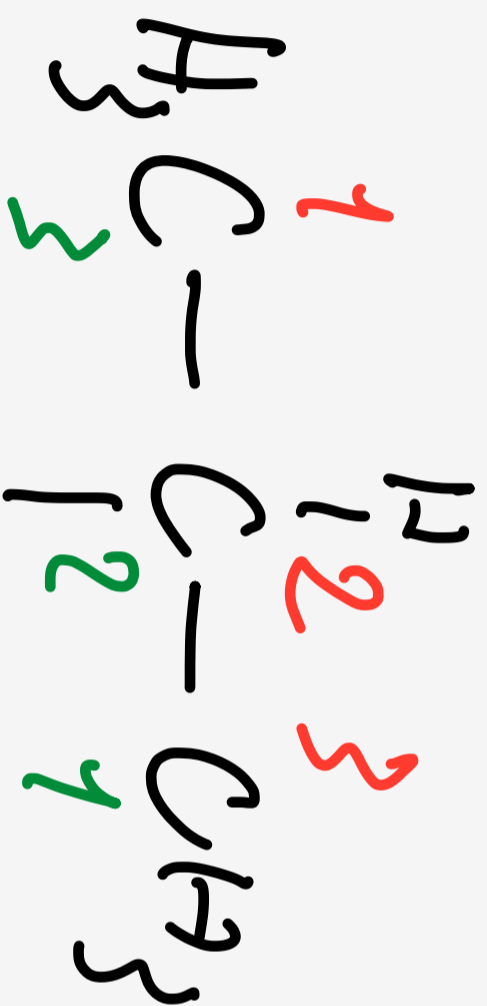


sp^3

H







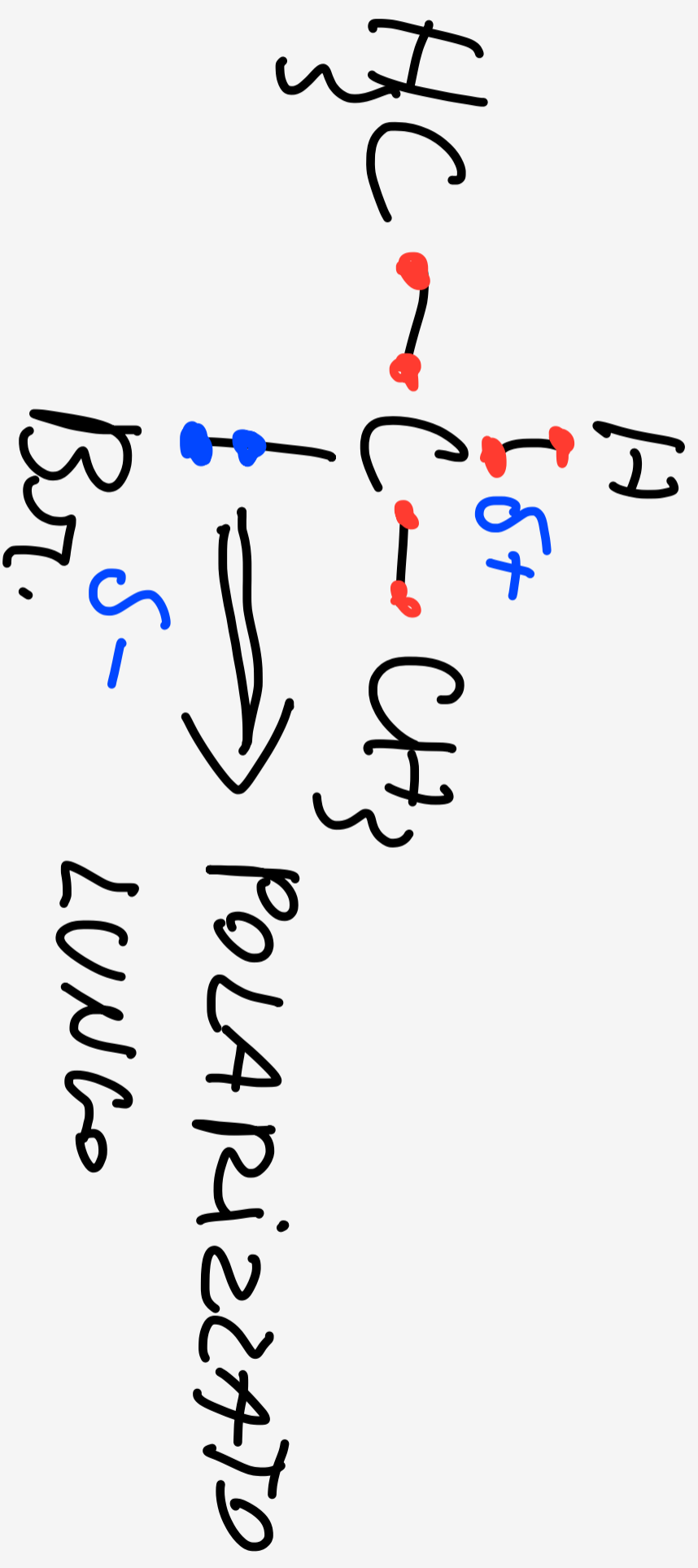
Br.

2-БРОМО-ПРОПАНО

2 = SP₃ ? ? И ЧИНАЛИ

NO = ПЕНАТИ НА 2 СОСИУФНА!

УЧУВА! (CH₃)



SOSTITUZIONE NUCLEOFILA

SN

СОСТАИТ ВЗЛОЖЕ МУСЦИОФИЛА



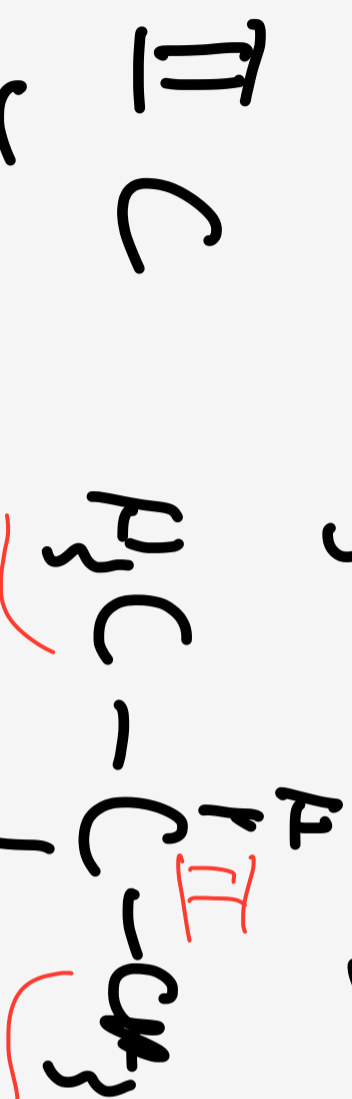
МОНОМОЛЕКУЛЯРНЕ

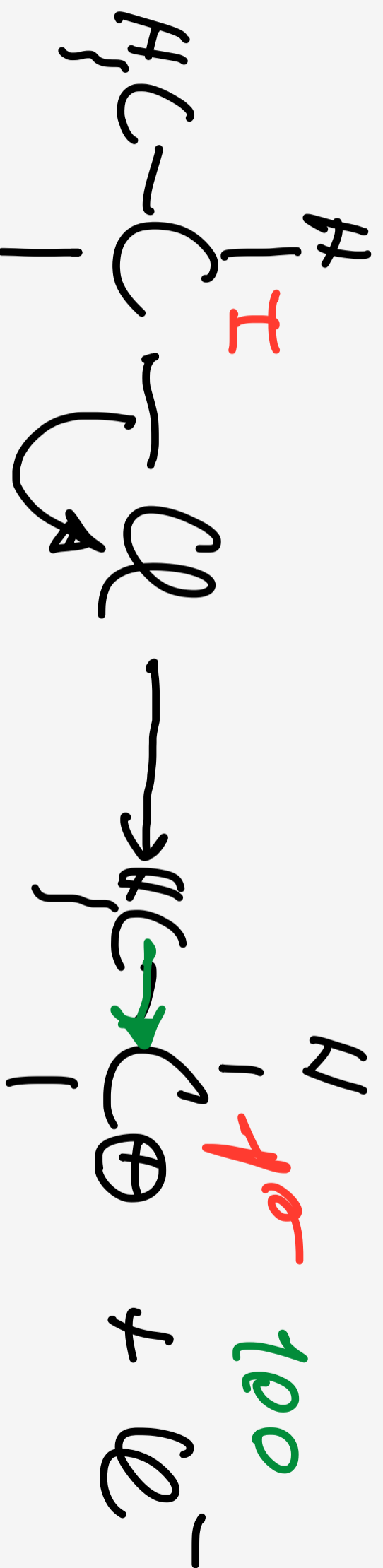
БИМОЛЕКУЛЯРНЕ



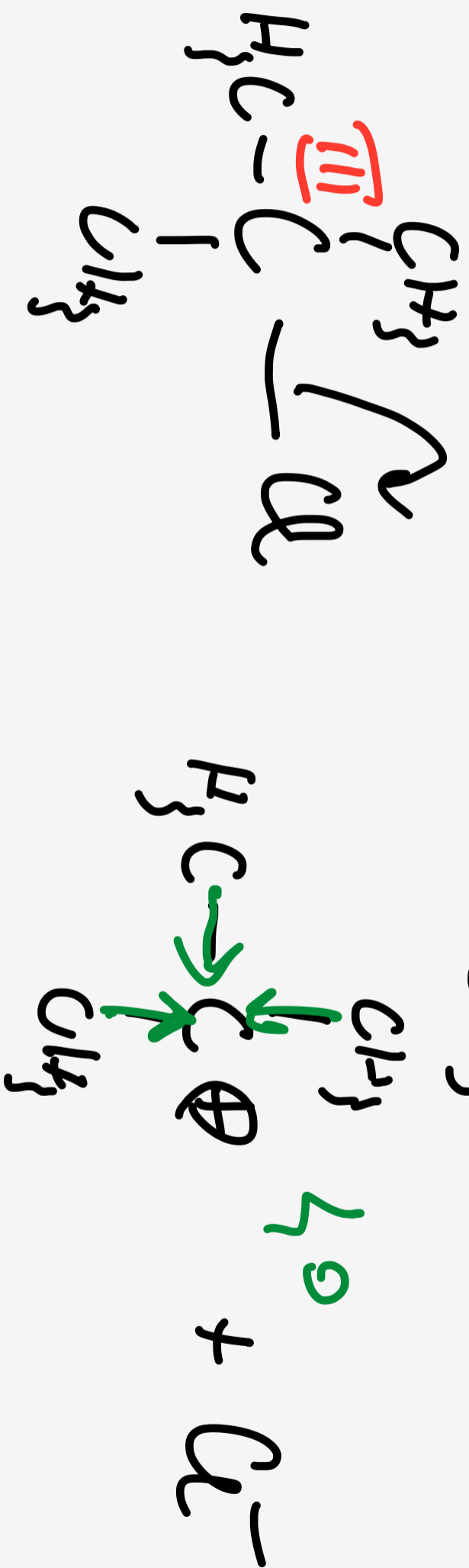
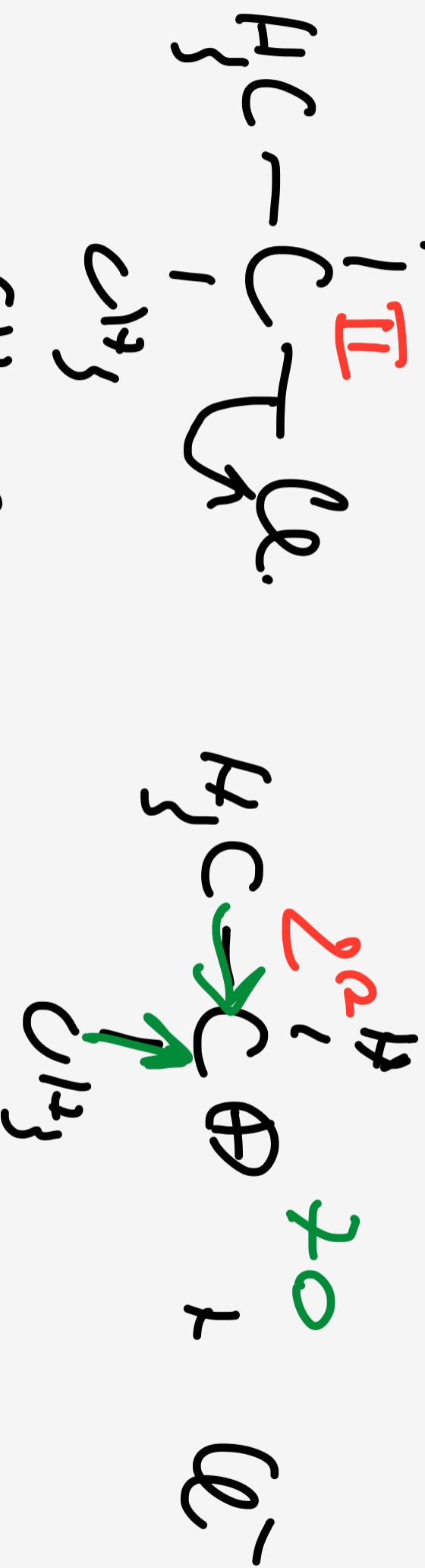
SN1

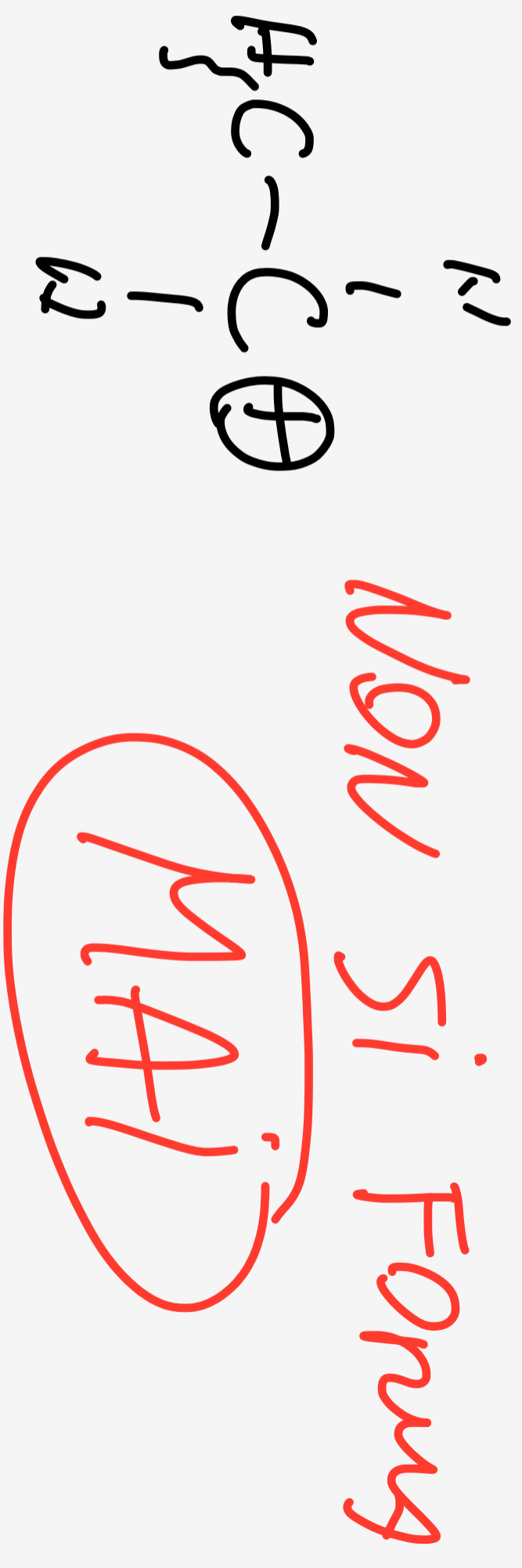
SN2





Carbocation





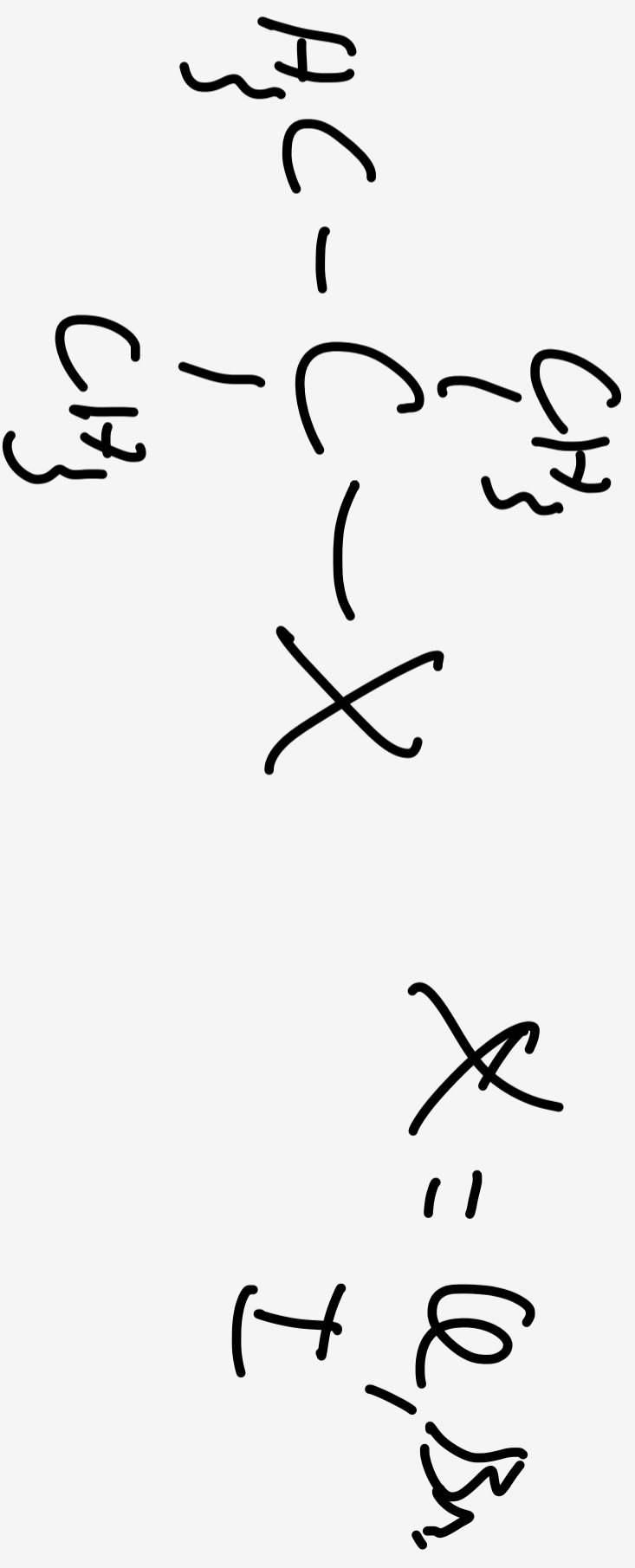
2^o ⇒ DIPHENYL

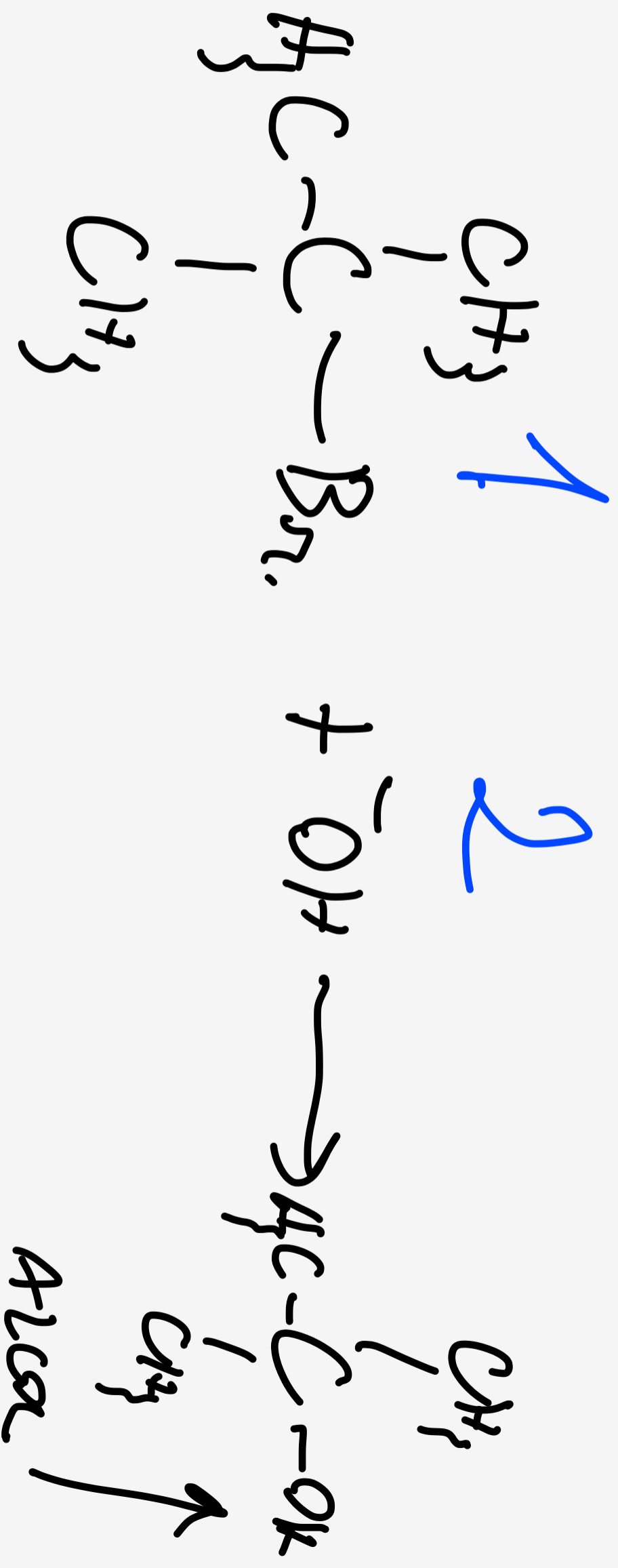


SOSTITUZIONI NUCLEOFILA
MONOMOLECOLARI

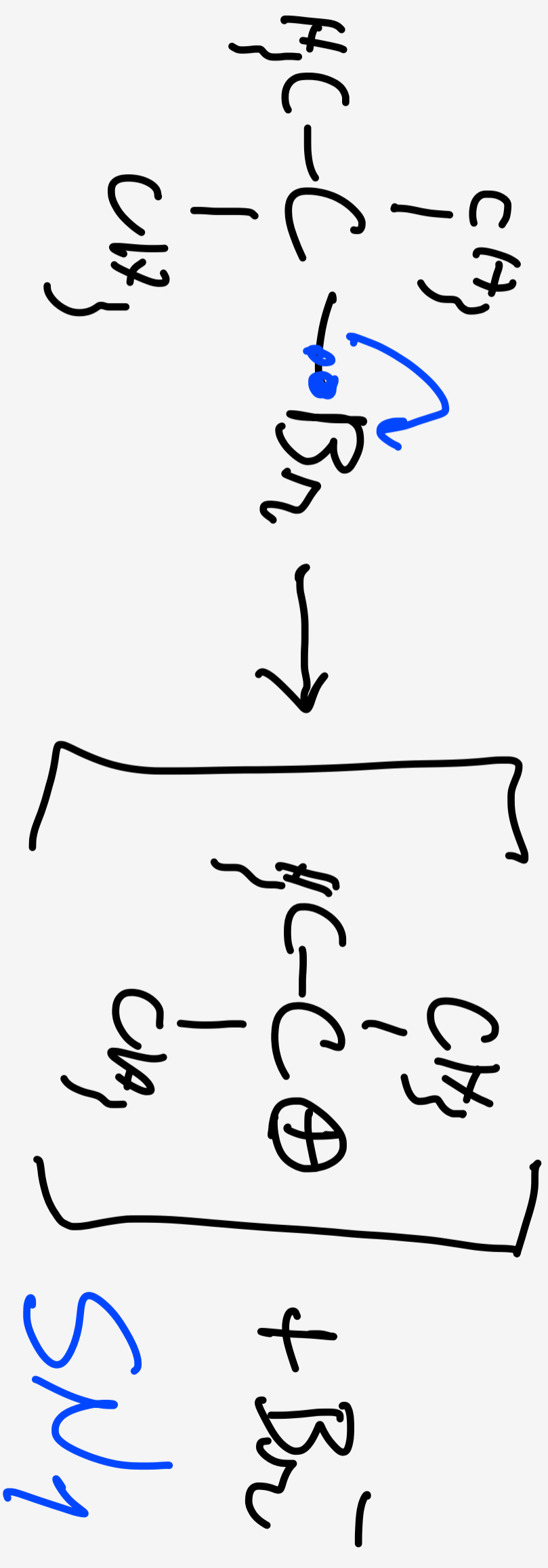
S_N1

ALCOENUN' ALCHILICI 3^o

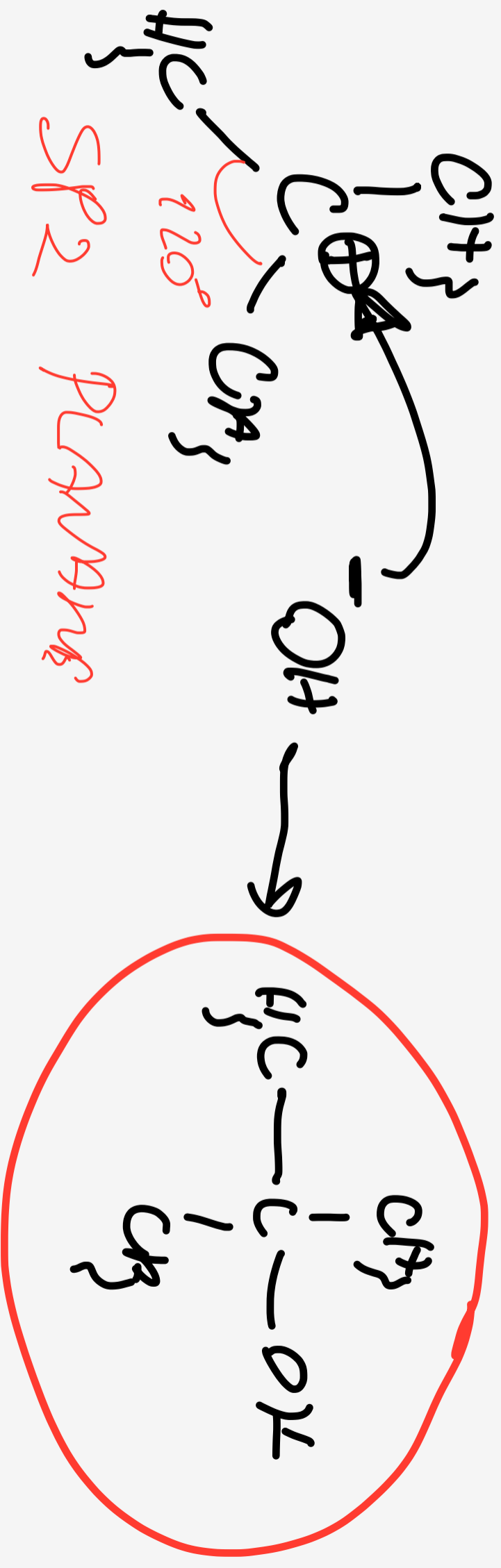


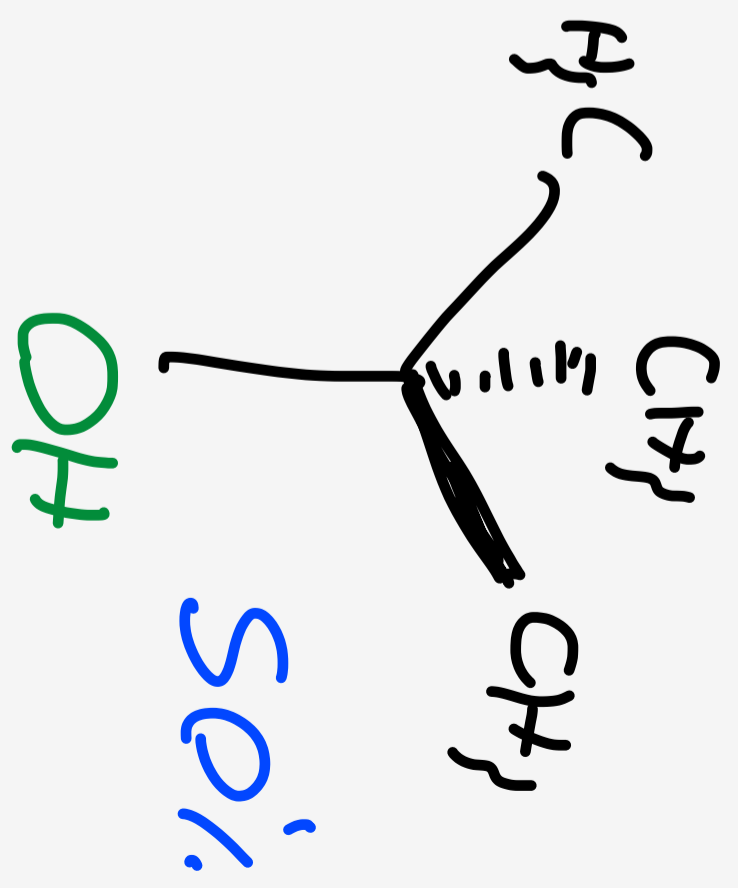
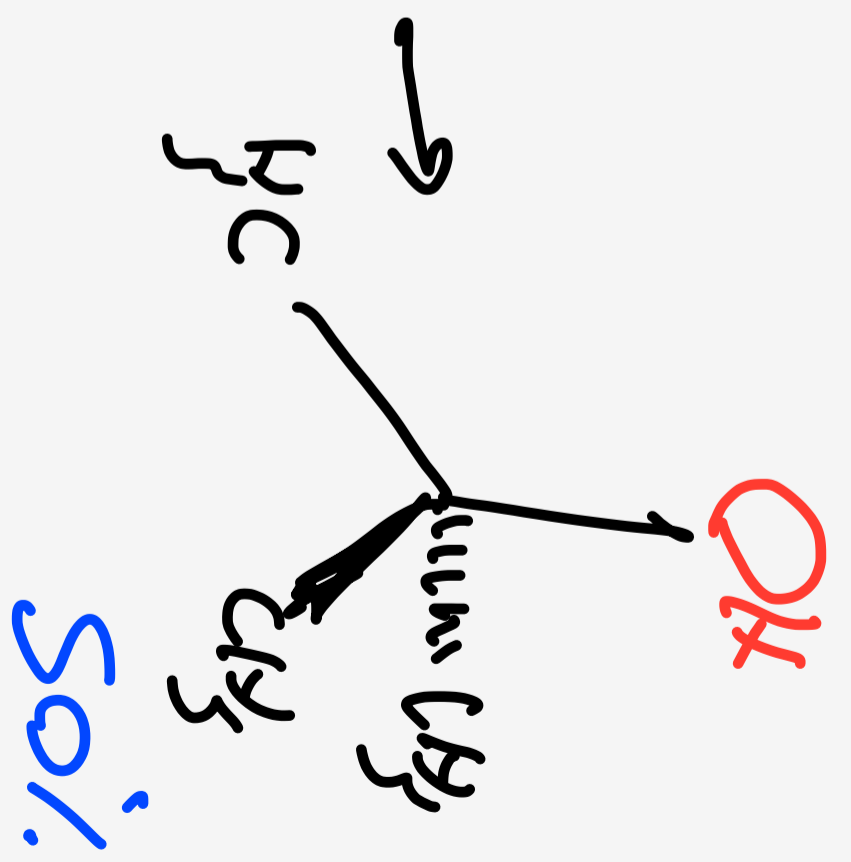
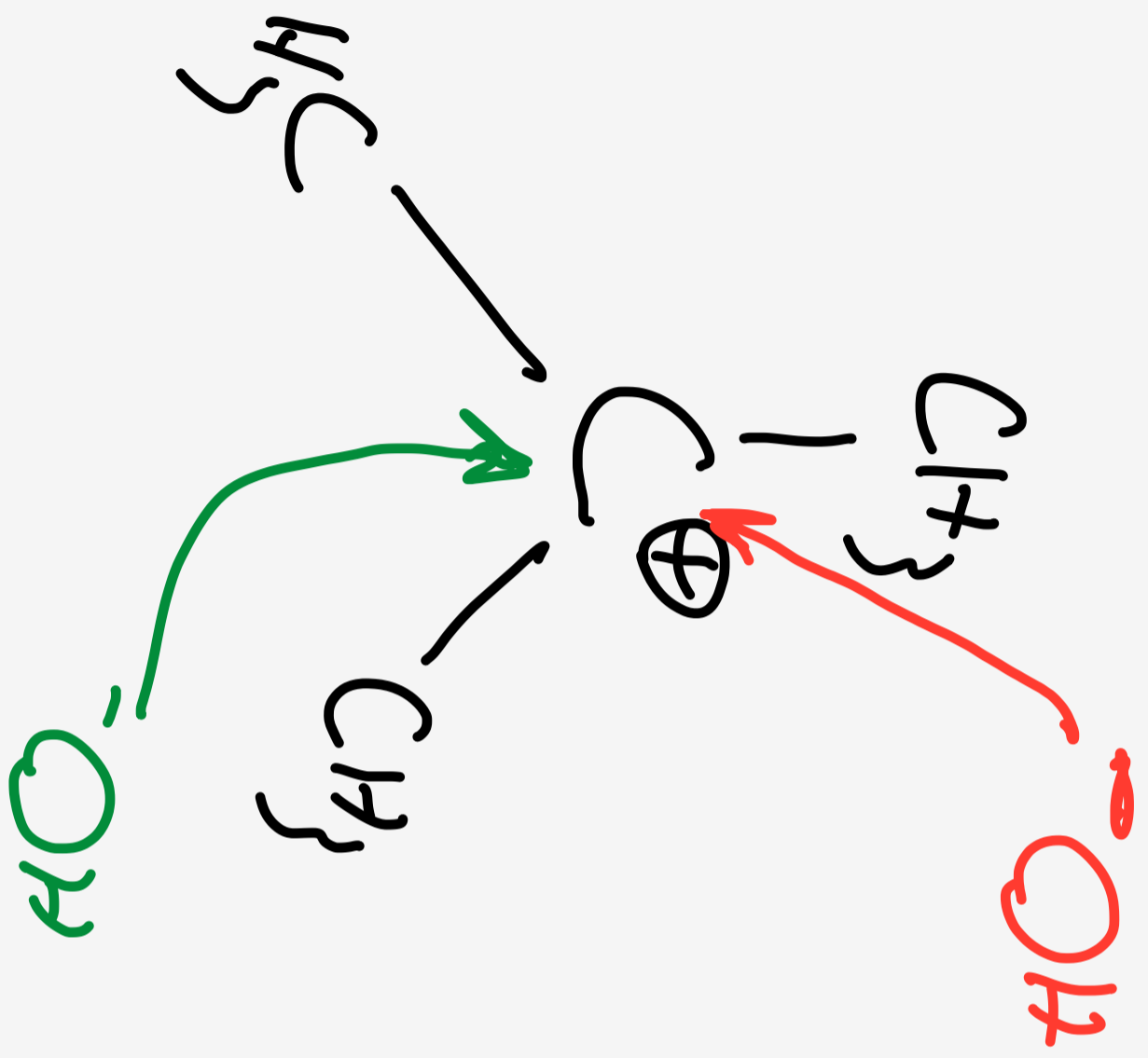


MONOMOLECOLARE (S_N1) REAZIONE IN
 UNO DEI REATTIVI BIRIBBITE
 SOLI DI ALCOHOLI CON IONI
 OBIETTIVO ALCOHOLI ①

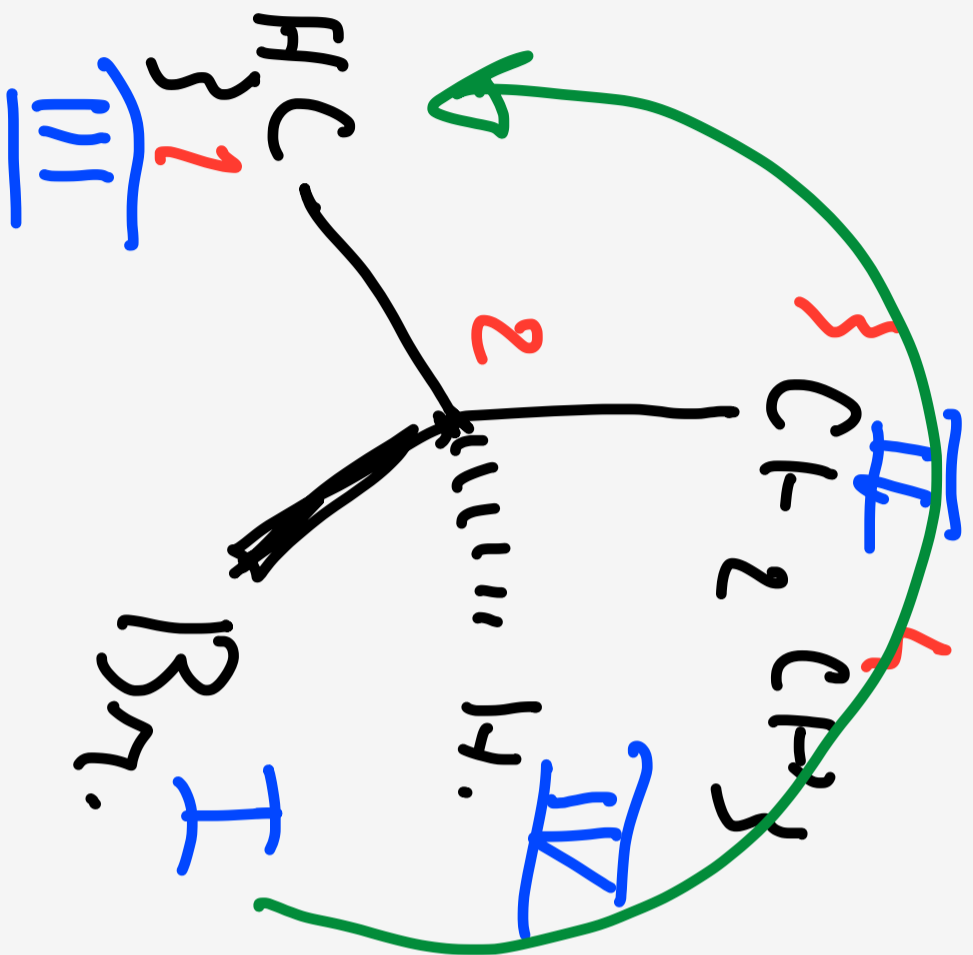


PARTELE CHEVITA DELE Phocce 550

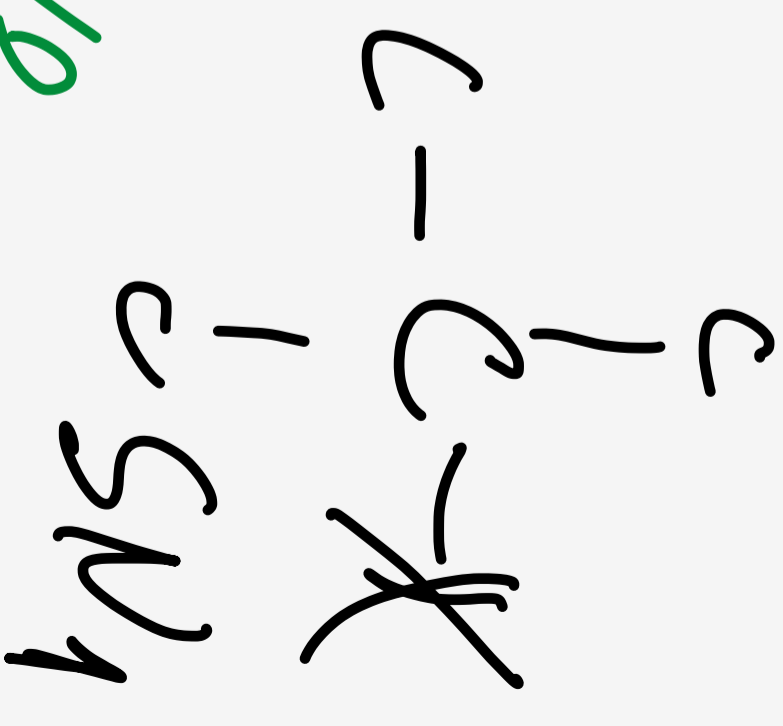




2-Bromo-Butano



S-2-Bromo Butano



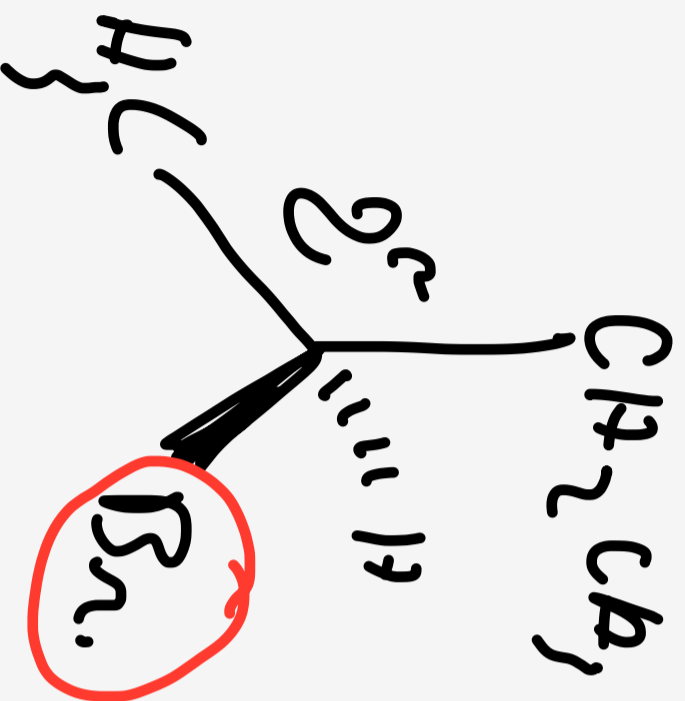
CH₂-CH₃

Nu⁻ = FORTÉ



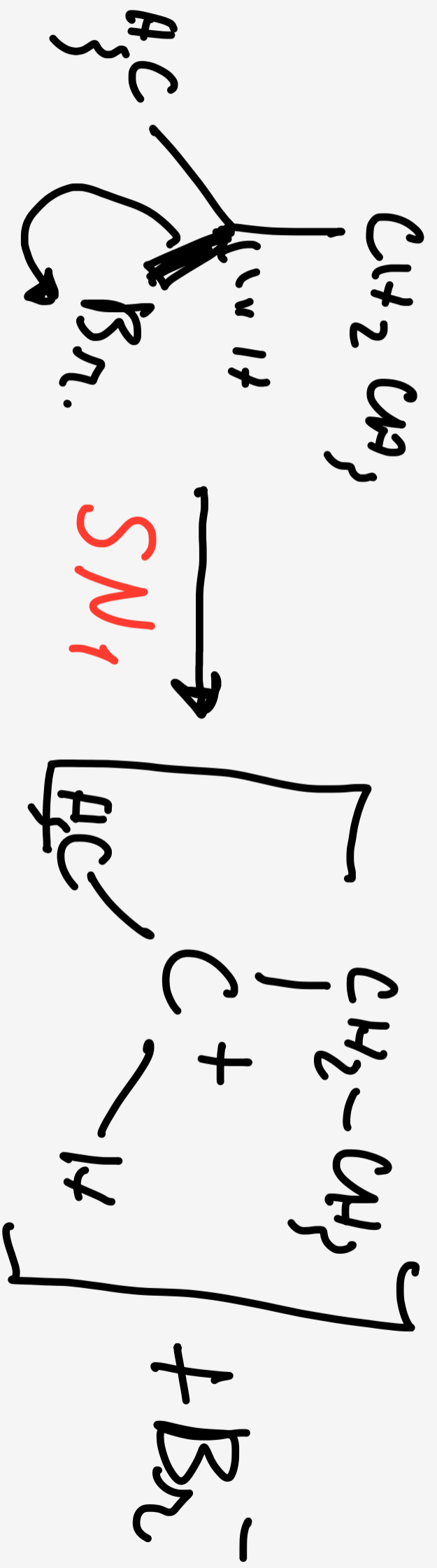
$\sim \text{OH}, \sim \text{NH}_2, \sim \text{CN}$
 $\sim \text{CR}_3$ SN₂

$N_M = \text{bE Bolz.}$



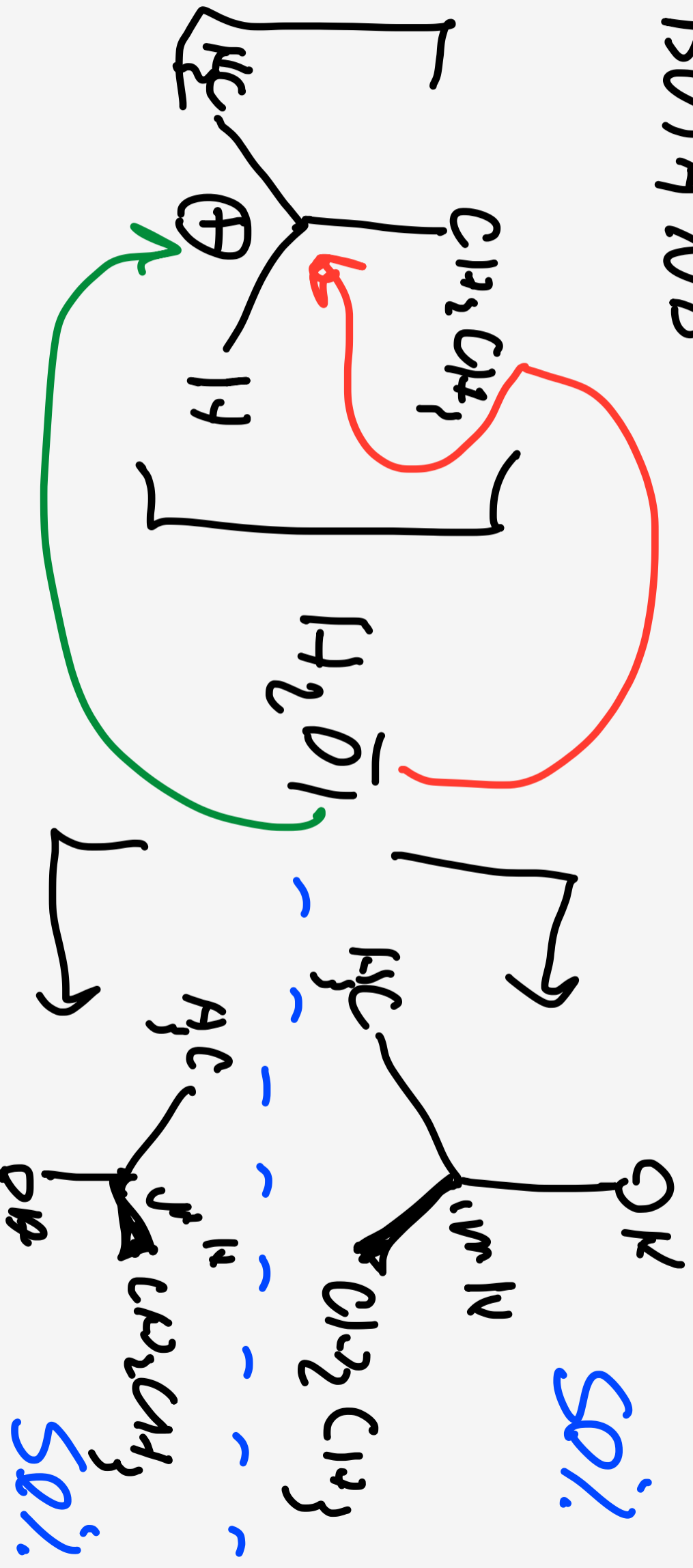
Sostituzion
Nucleofila

2-Butanol



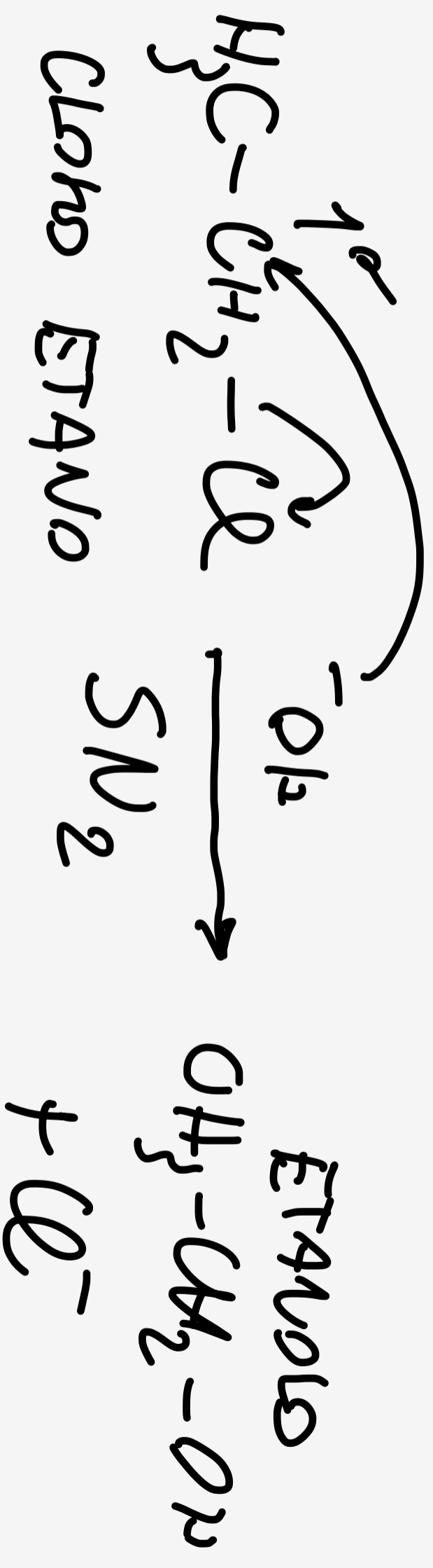
S-2-Bromo
BUTANO

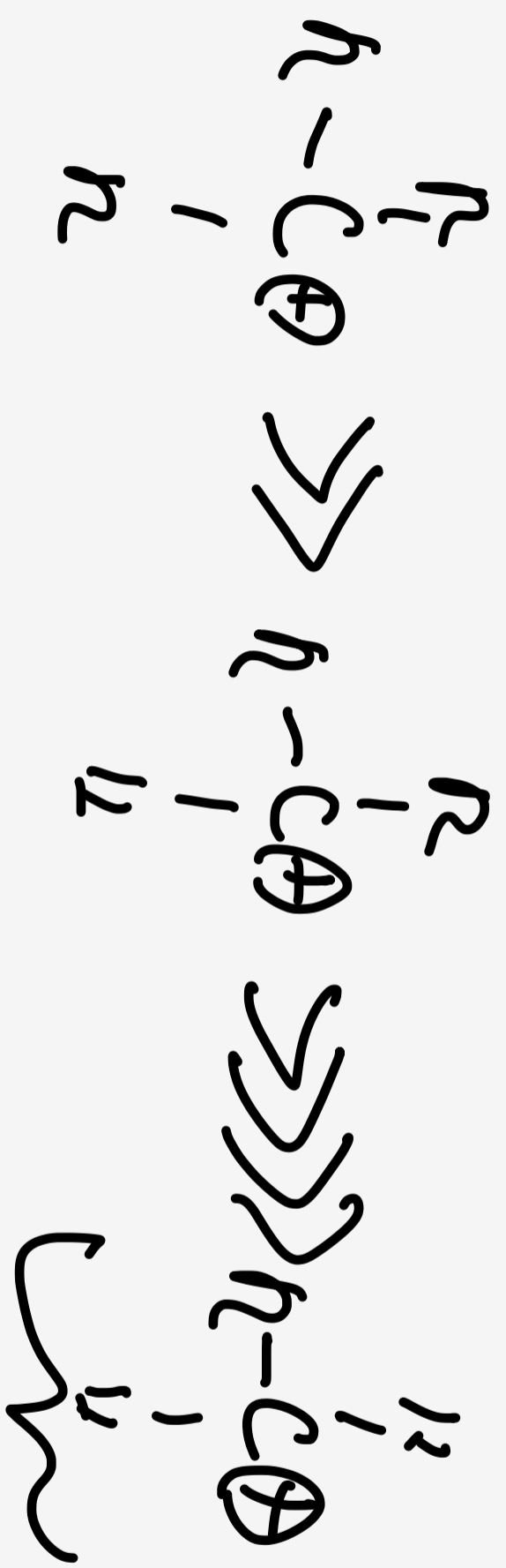
SPE = PLANAR



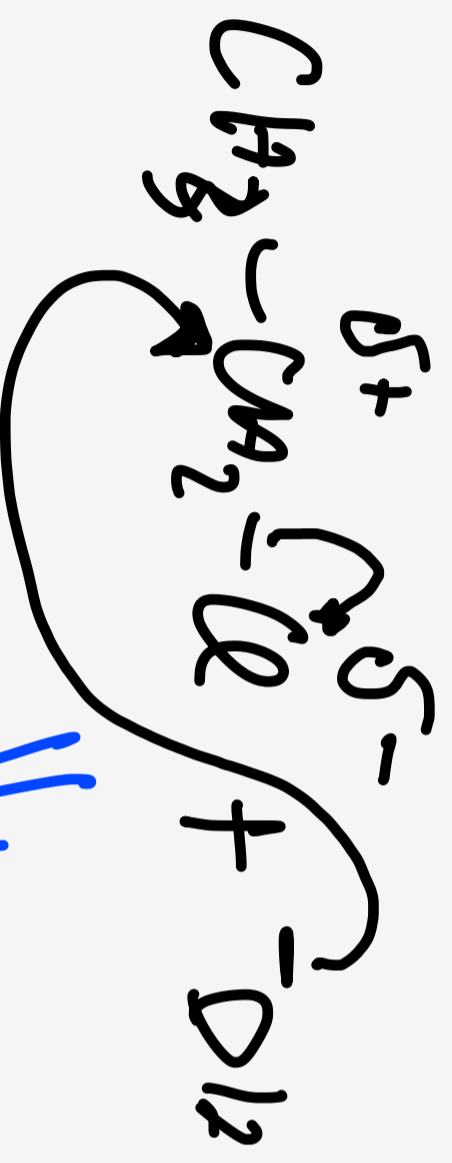
SOSTITUZIONE NUCLEOFILA
BIMOLECOLARE S_N2

ALCOHOLI È PRIMARIO



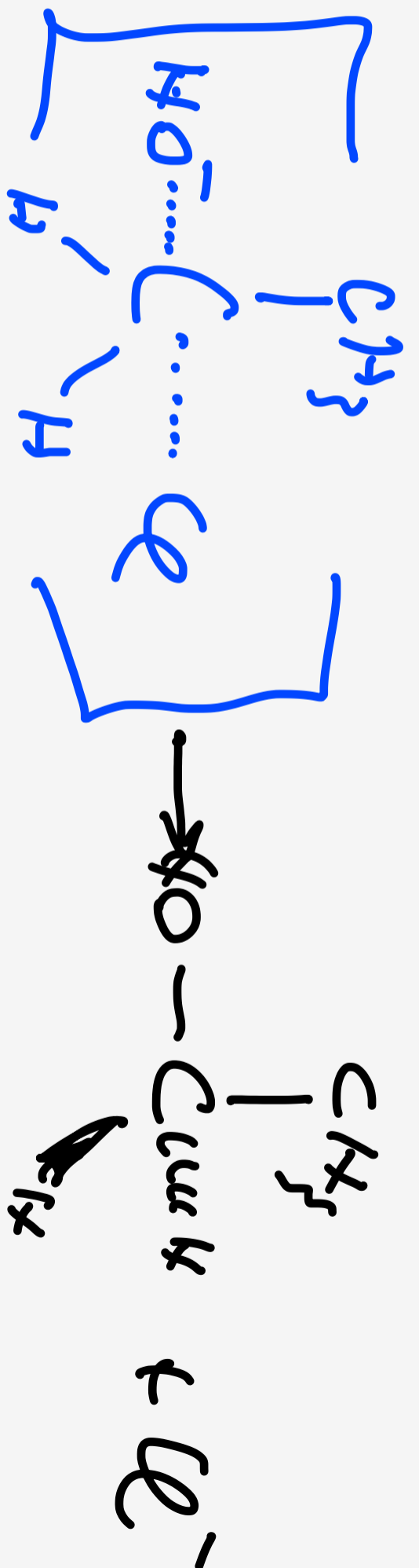


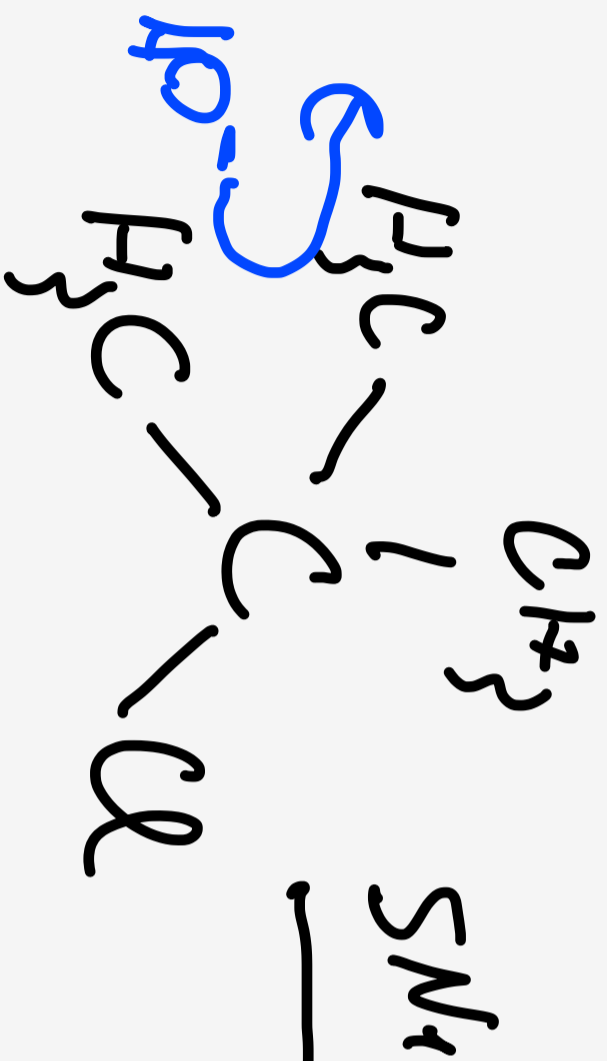
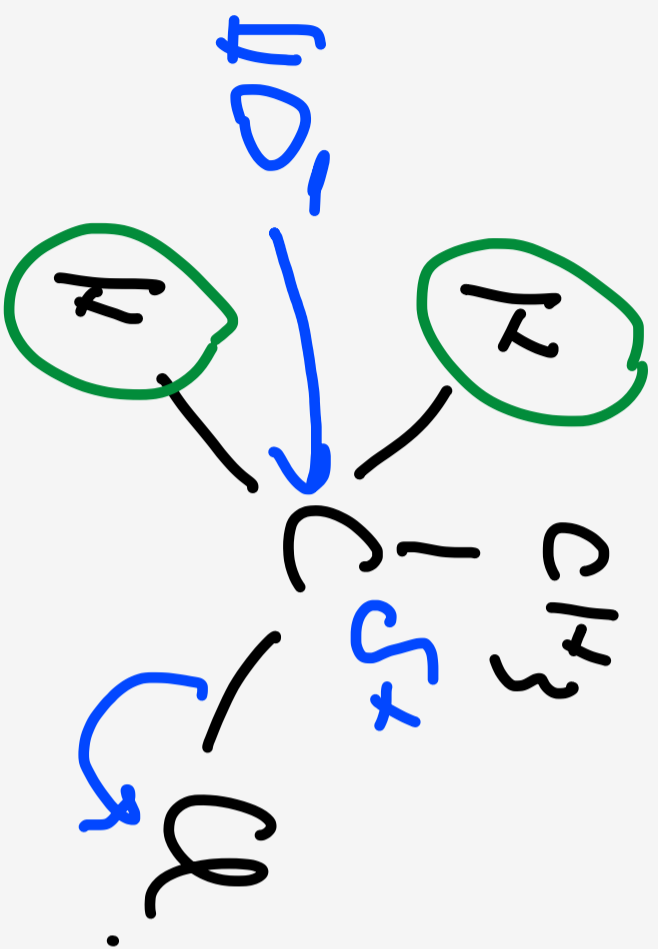
non exists



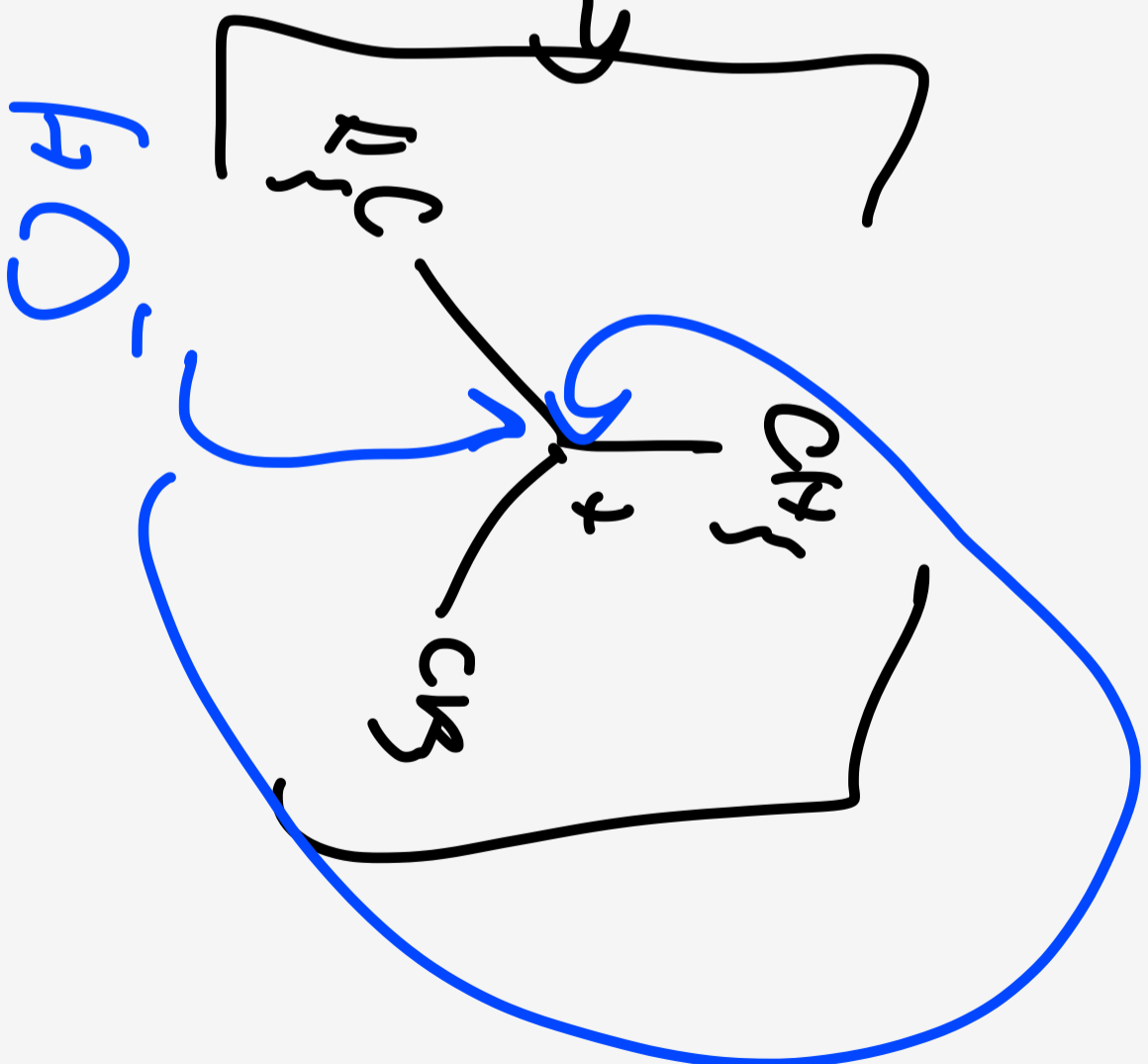
CONCENTRATED

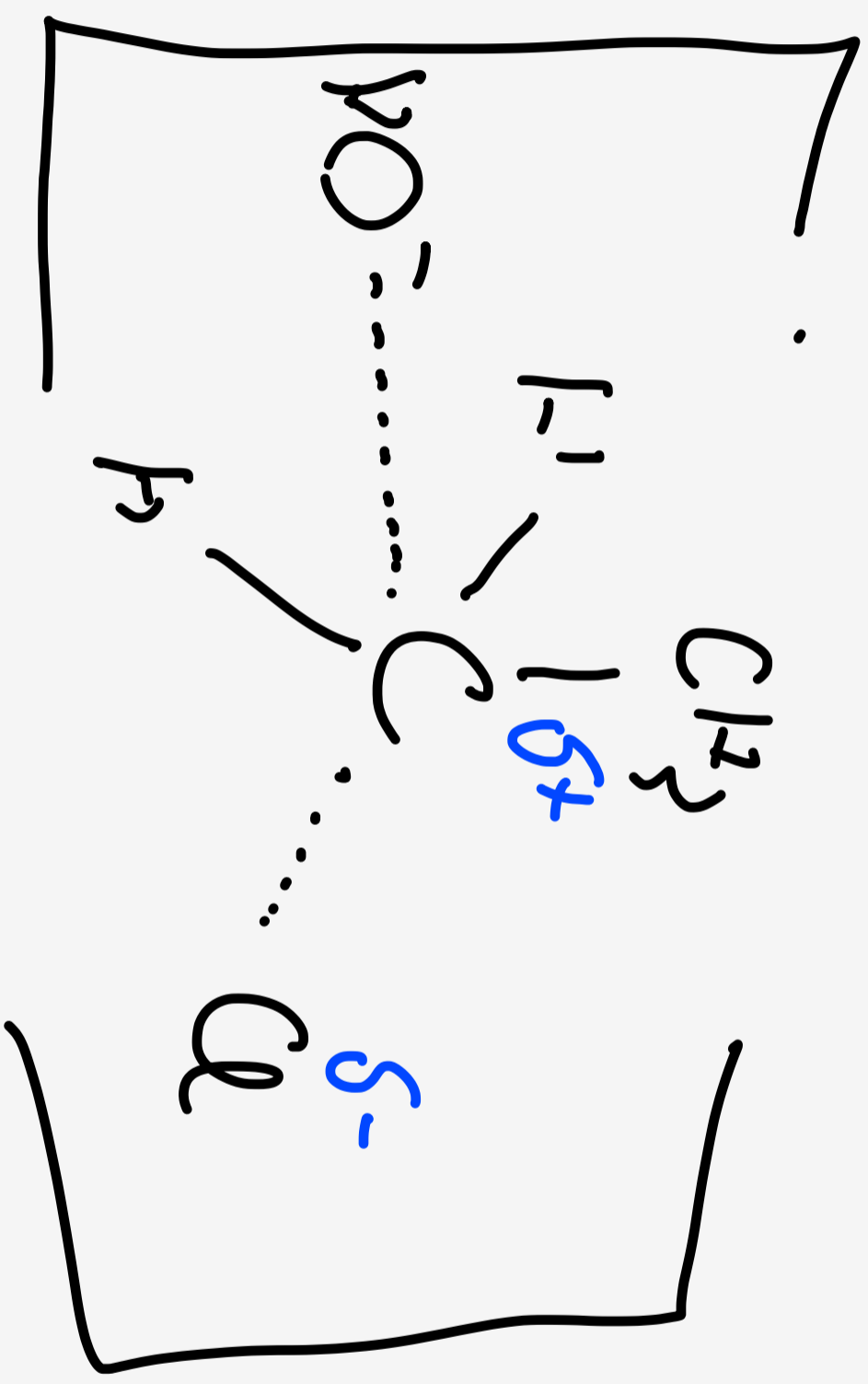
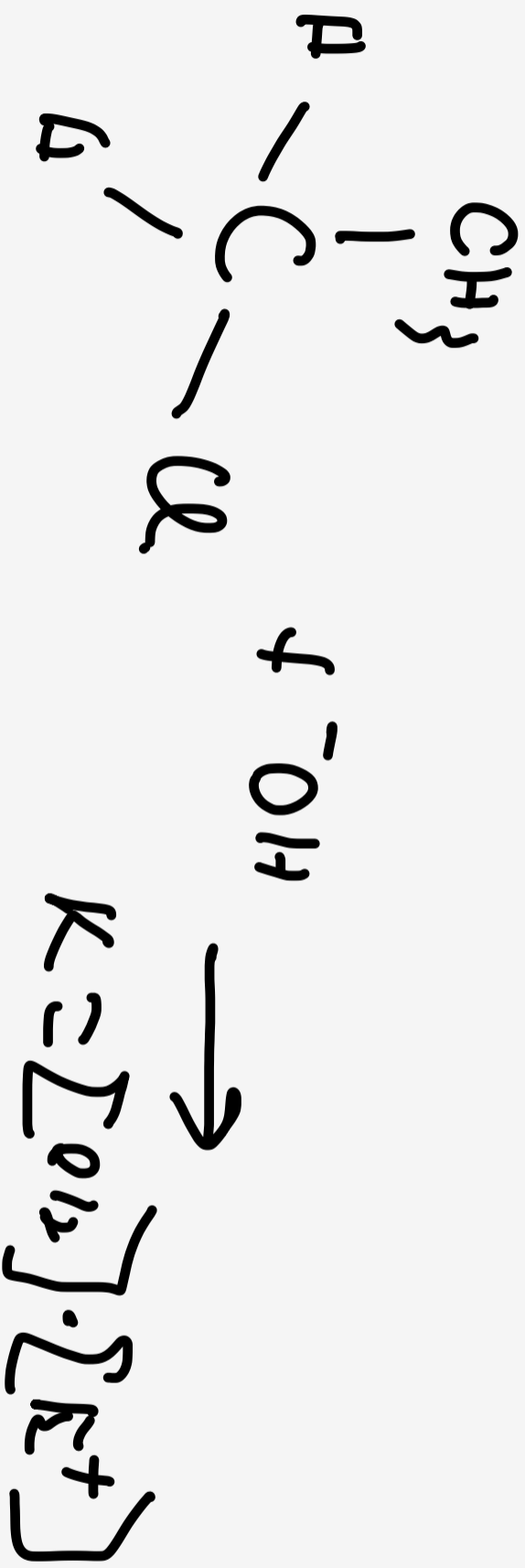
STATIONARY TRANSITION





SN_1

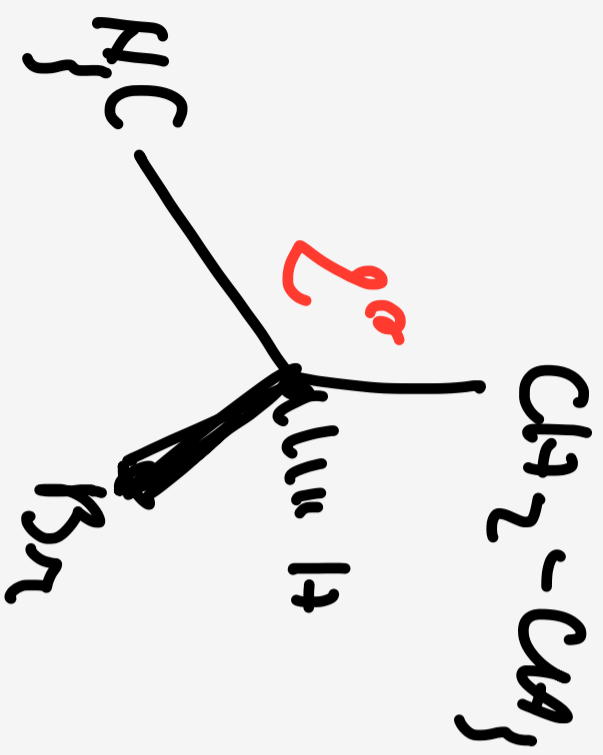




STATO BI TRANSIZIONE
 STATO LENTO

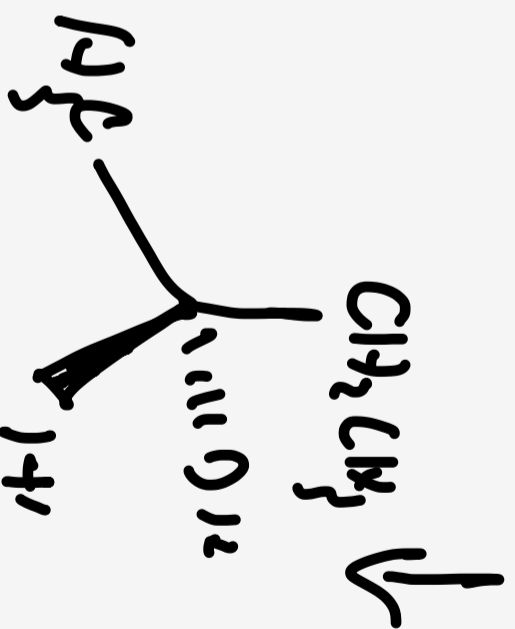
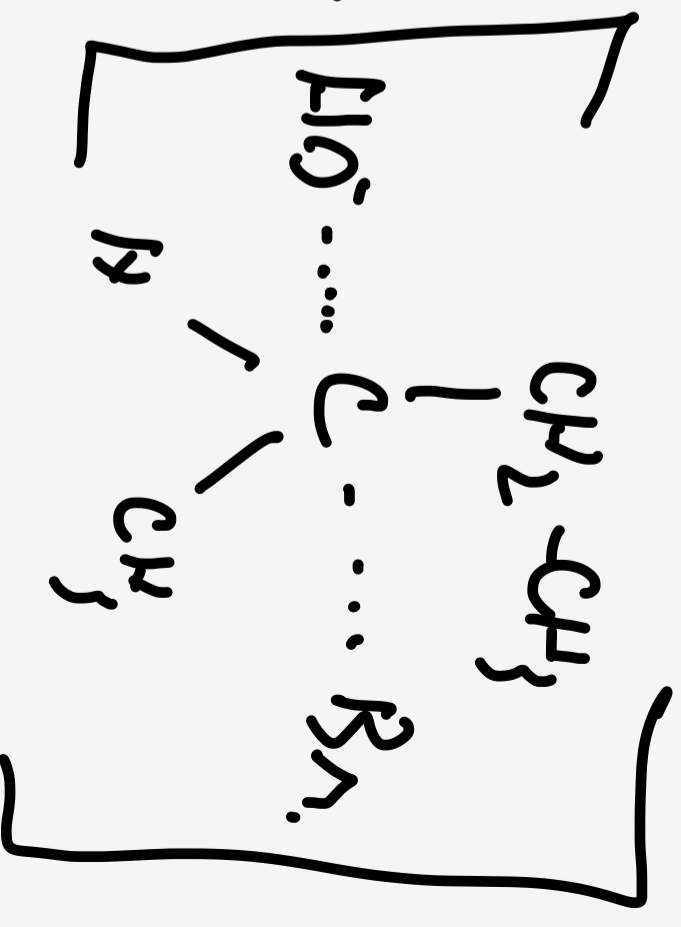
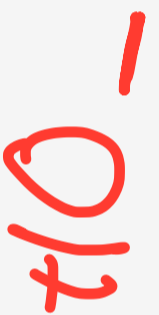
SN2 SEYMPNE AZOCINHO 1º

SN1 SEMPRE ALGUEMOS 3º

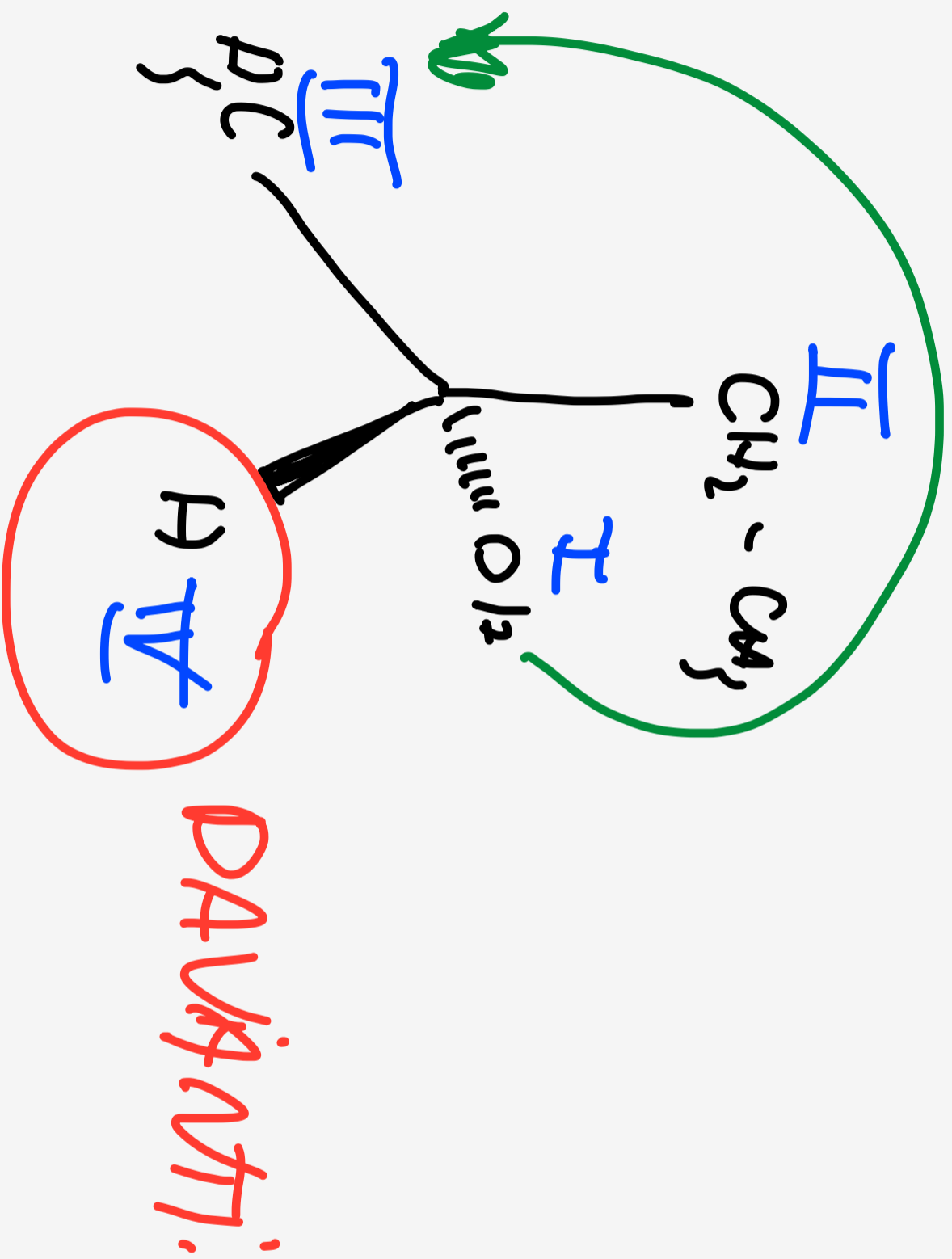


S-2-Bromo

BUTANO



inversione pi WALPBA

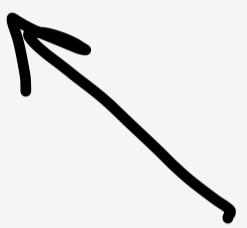


DAVINI:

R-2-BUTANOL



ALCOHOLS 2^o



SN1

M_n:
SOLVENT:
Protic:

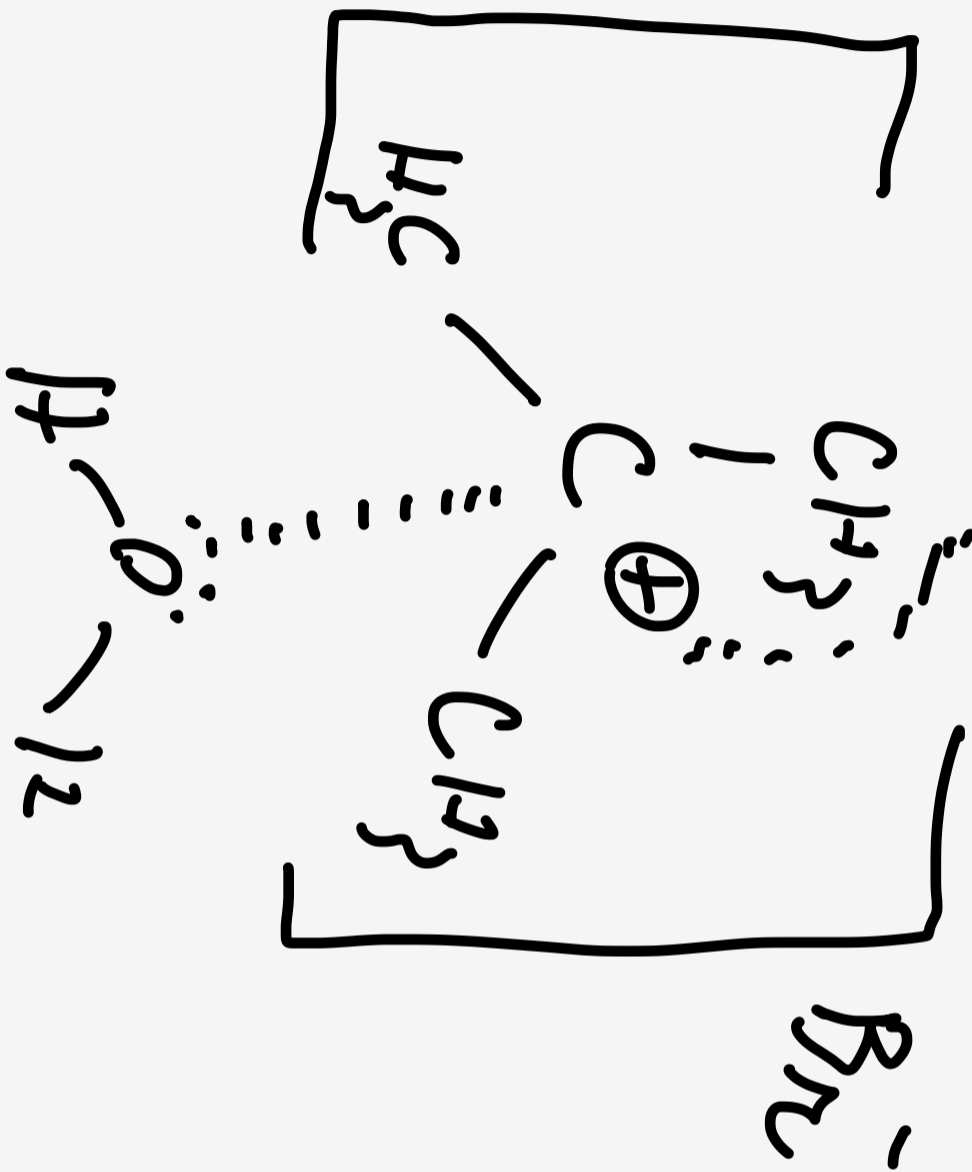


SN2

OH⁻
SOLVENT:
Aprotic:



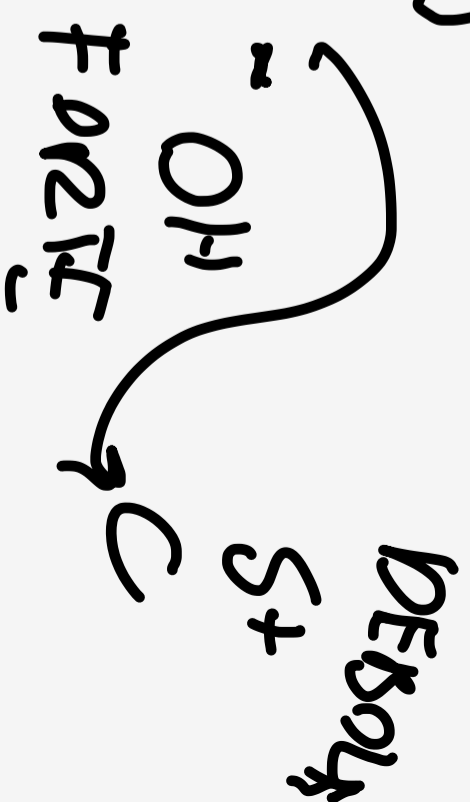
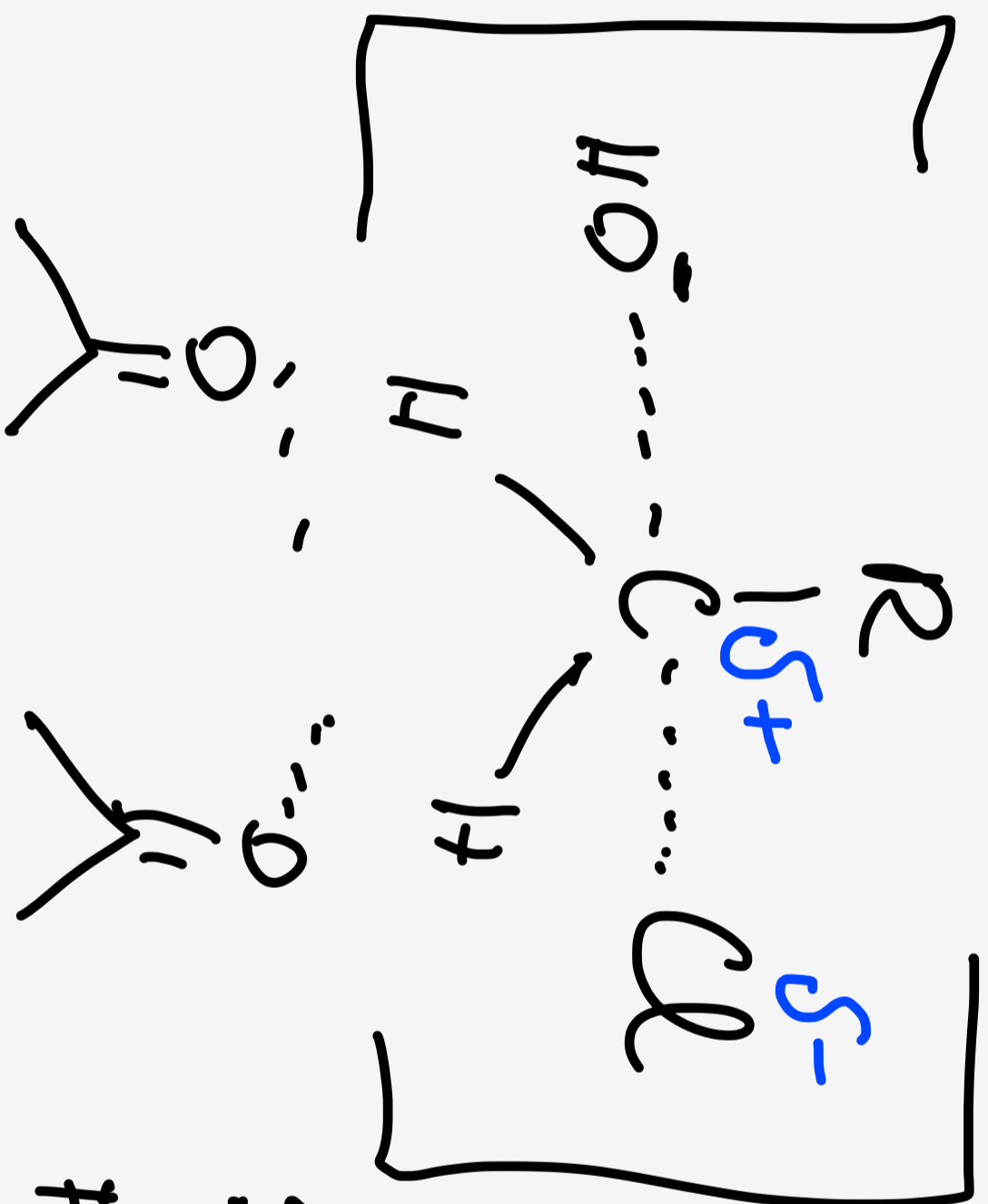
SN1 FAVORITA NU DEBOLY



IL NU DEBOLY PHENOLIC ATTA ACCA NU
 UNA AMIC POSITIVA NETA

SN_2 N_3^- FORTI!

SOLUENTI APROTICI.



C#

SOSTITUZIONE
NUCLEOFILIA

VS

ELIMINAZIONE
ZIONE

$SN_1 \Rightarrow E_1$
ELIMINAZIONE
MONOMOLECOLARE

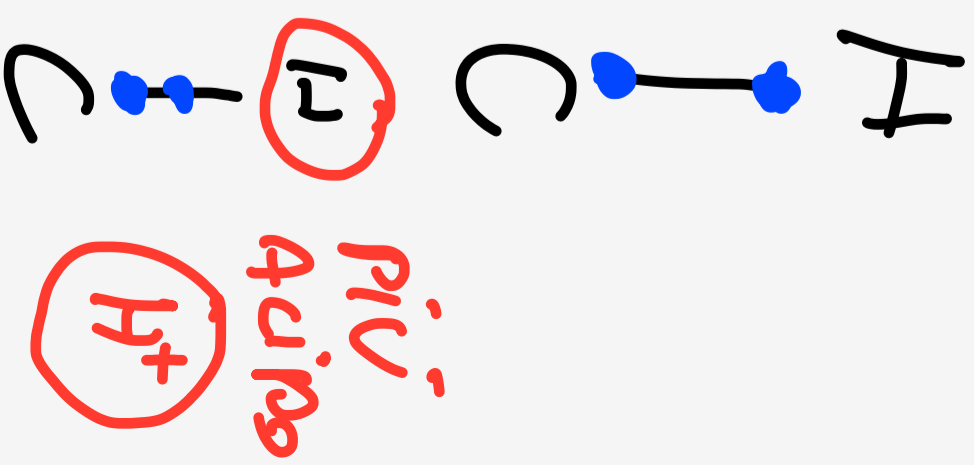
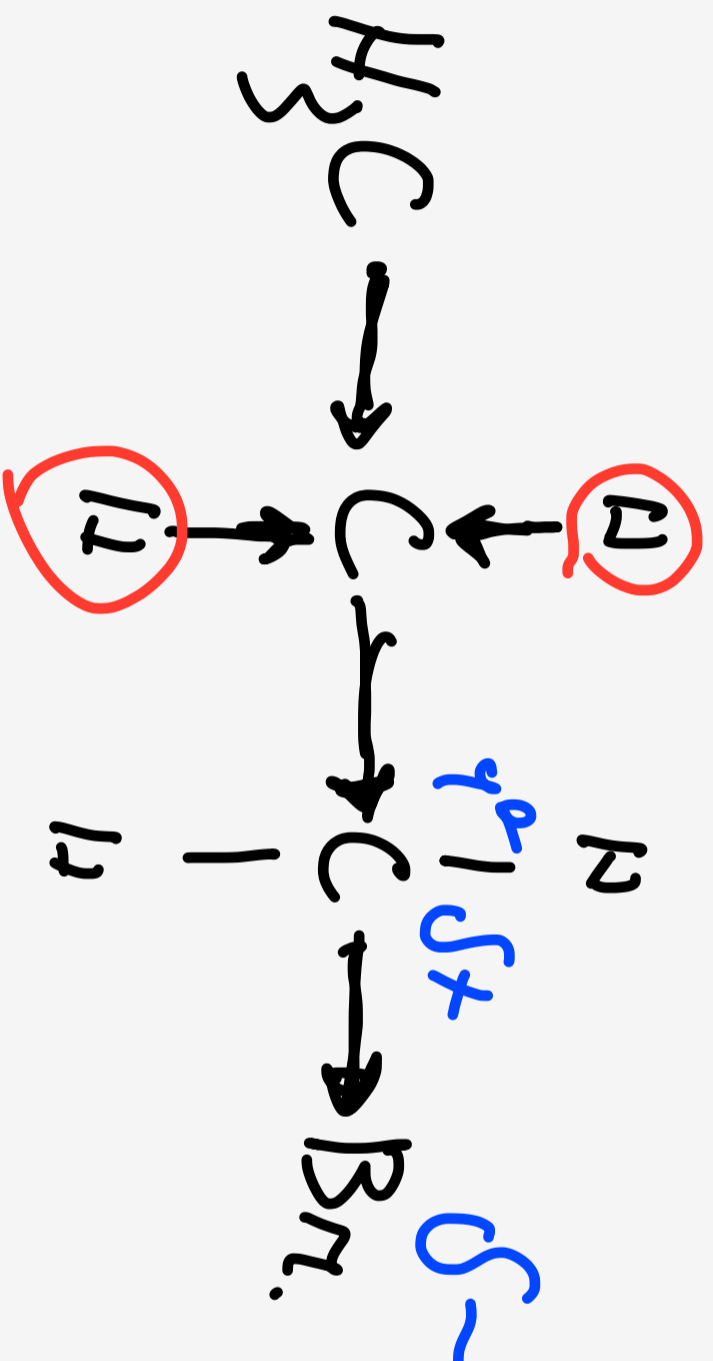
$SN_2 \Rightarrow E_2$
ELIMINAZIONE
BIMOLECOLARE

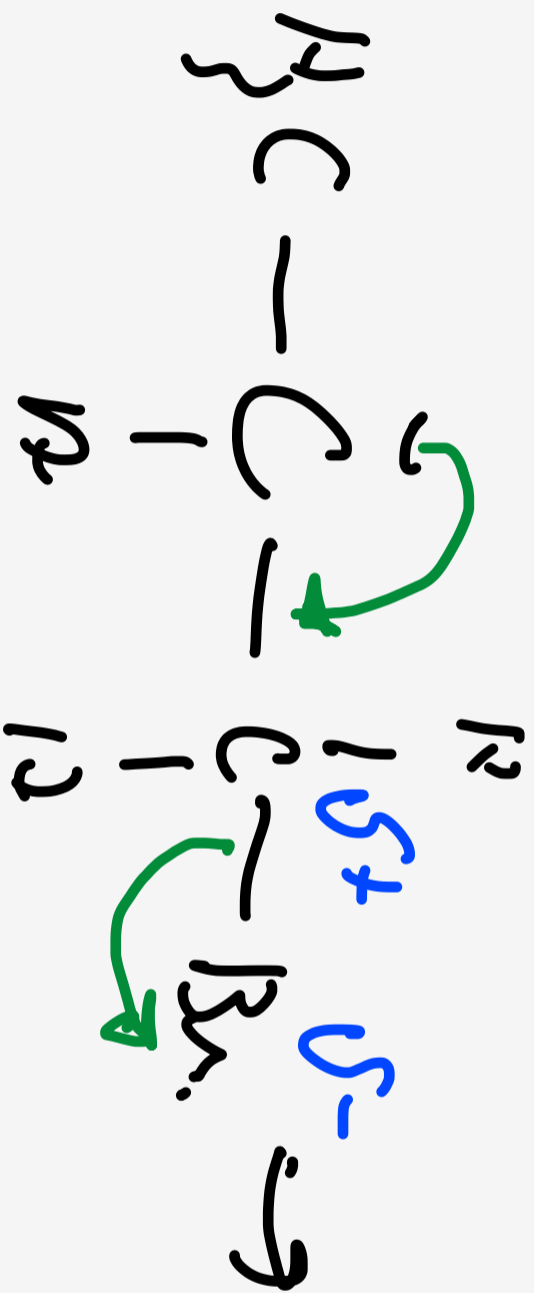
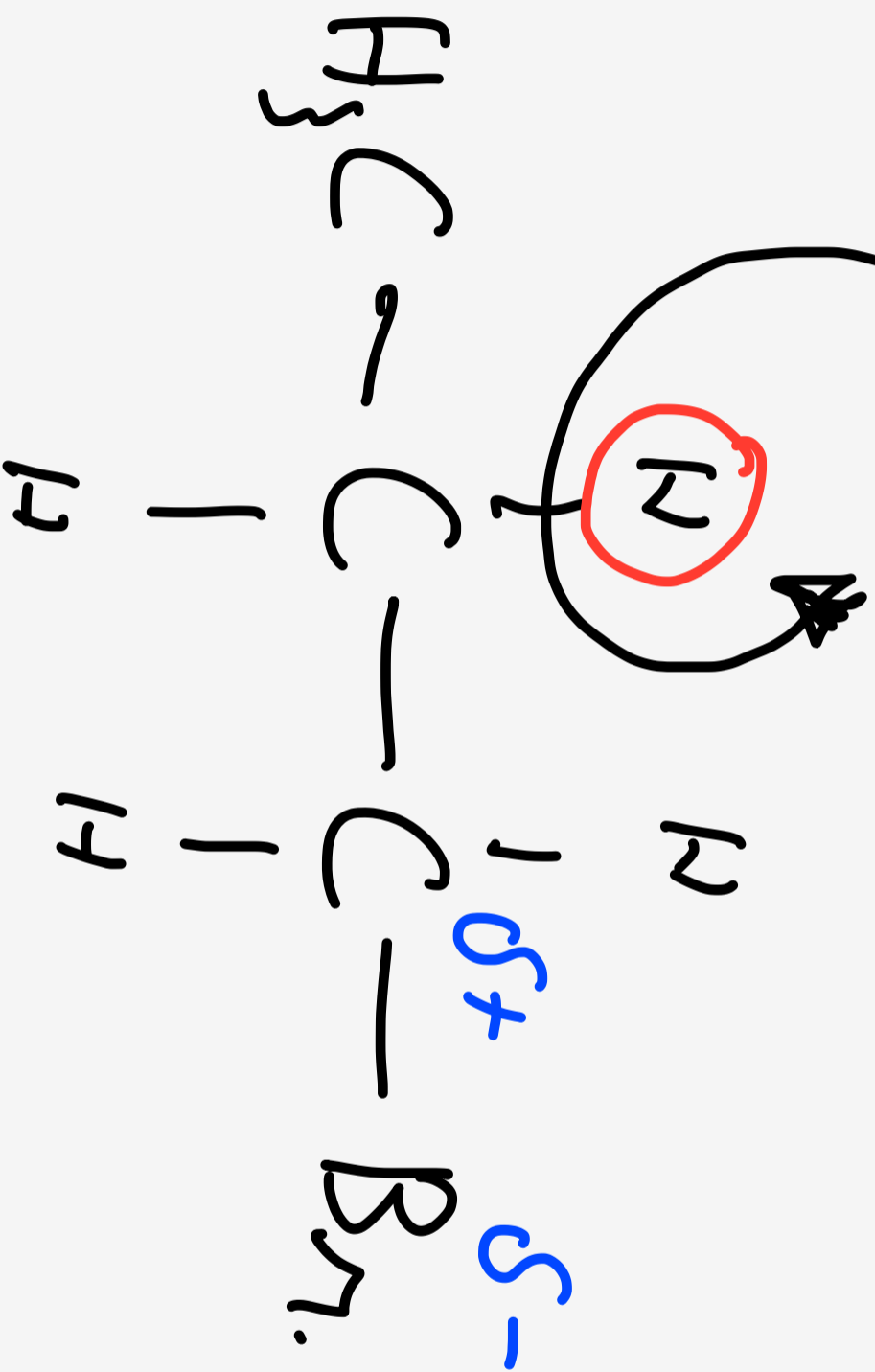
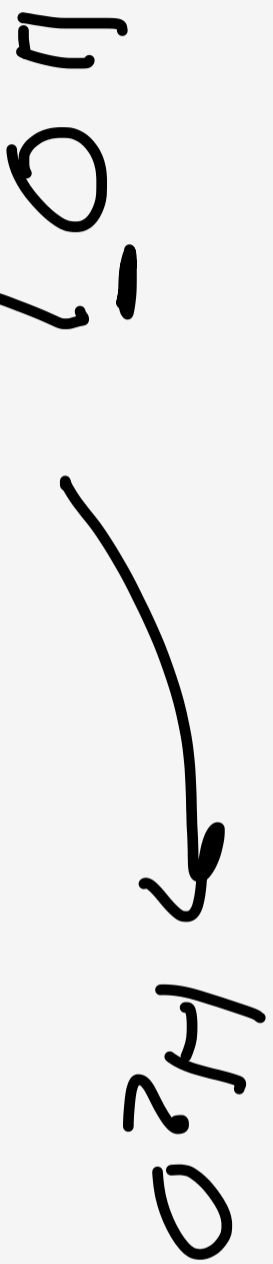


NUCLEOFILIA

BASE

1- Bromo-1-propano

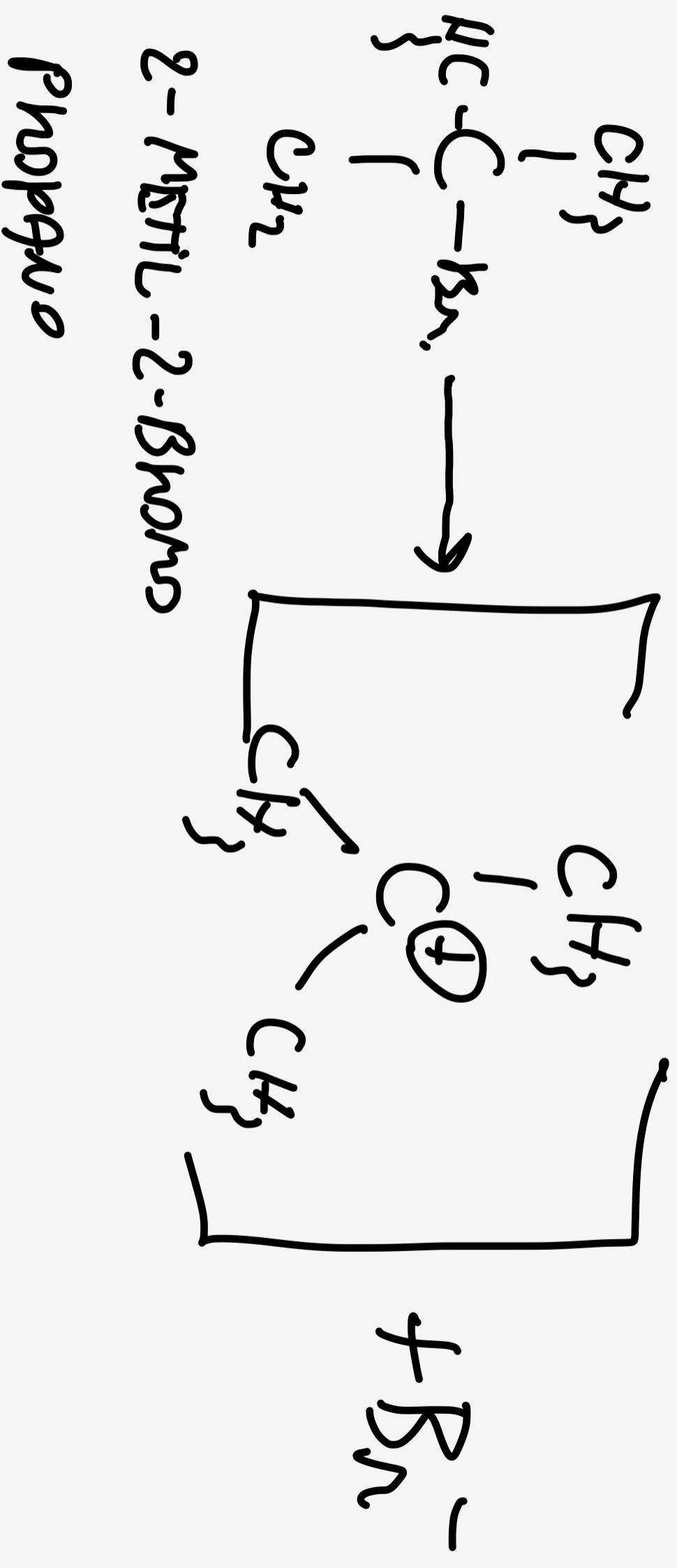




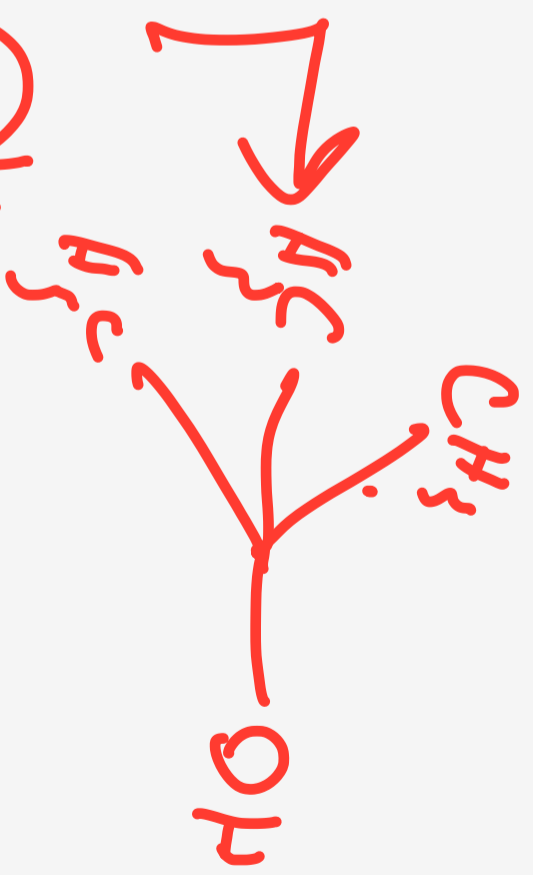
ALCANE



E1 Alcohols Uses 3^o

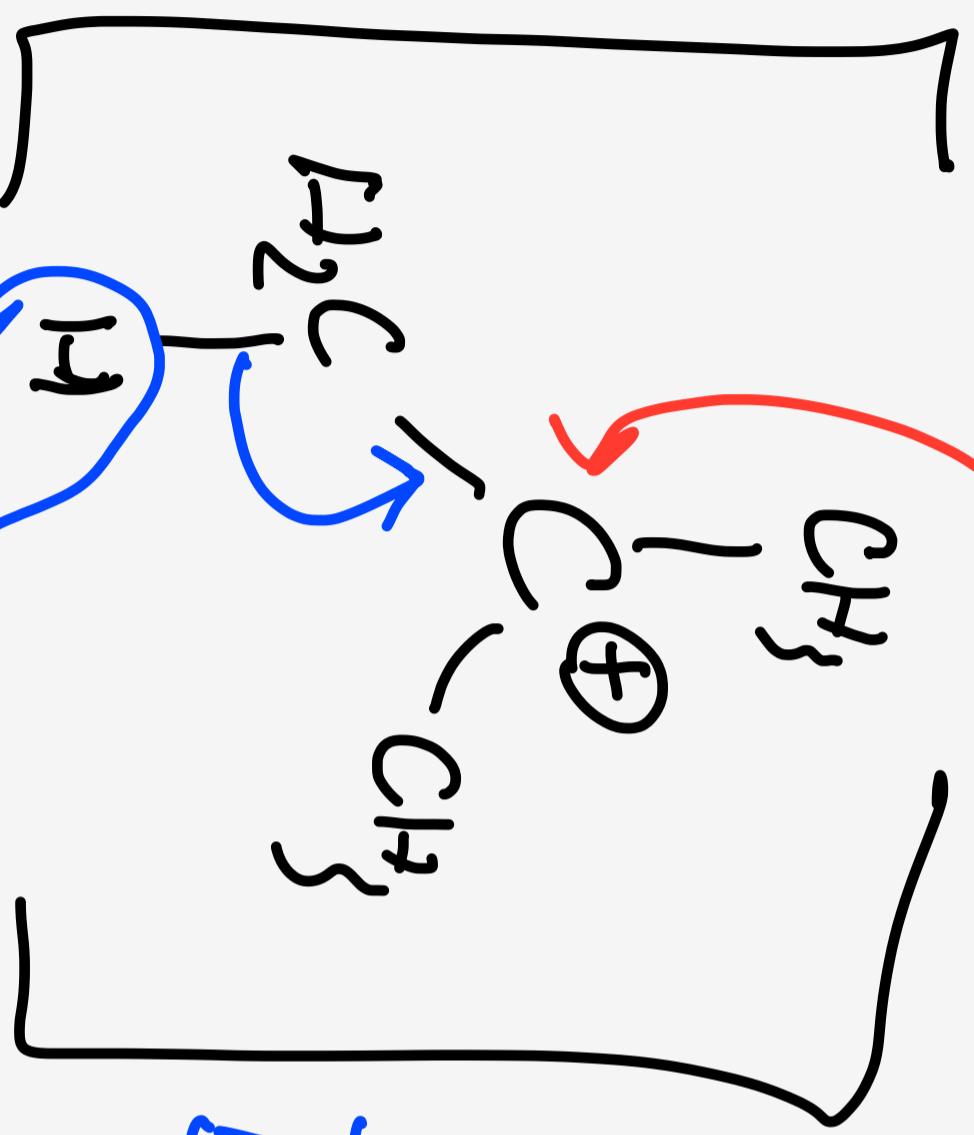


NUCLEOPHILE



2-METHYL-2

SM₁ BUTANOL



T₁

CH₂



ISOBUTANE

BASE

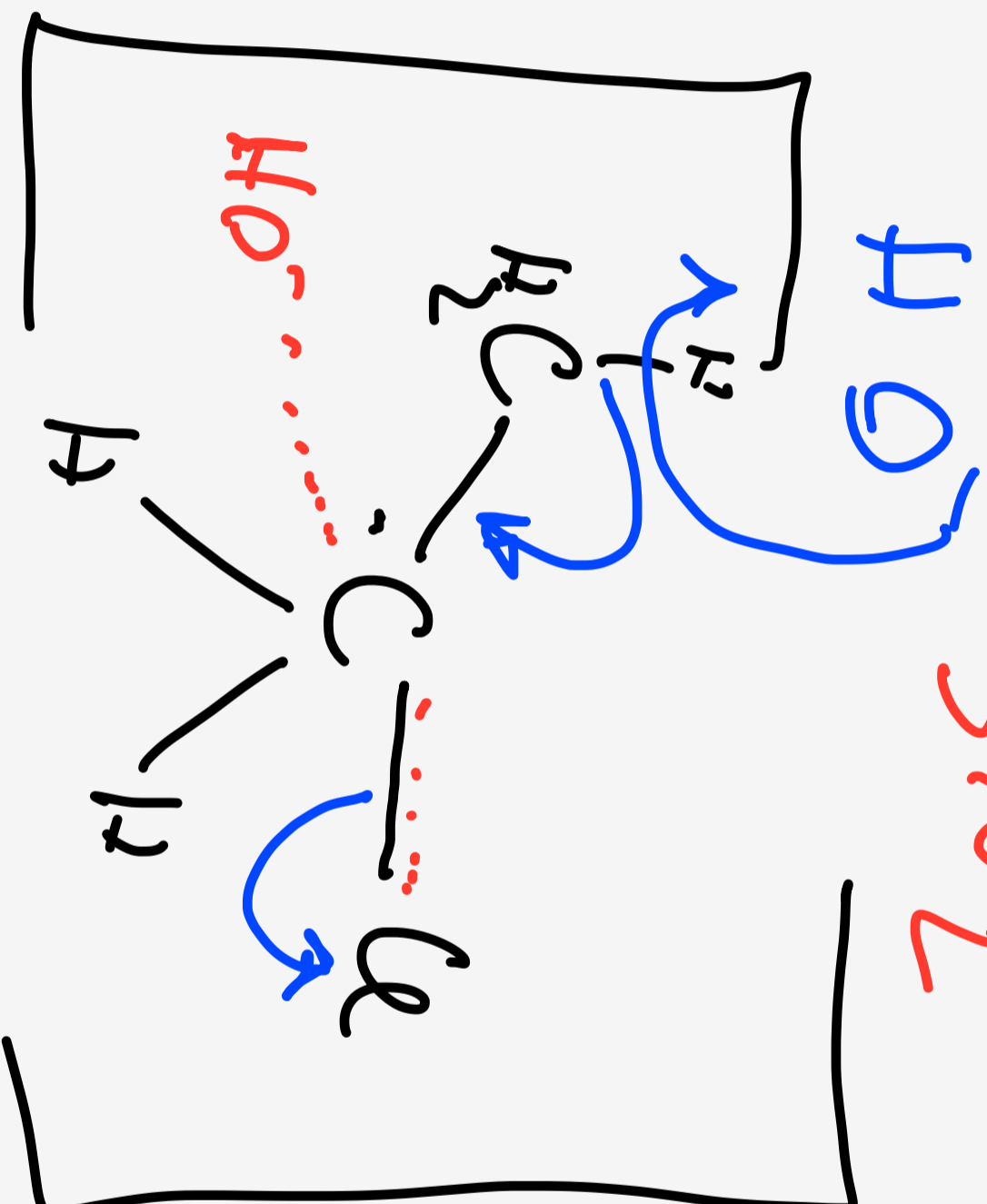
SN2 vs E2

HO^- NUCLEOFILO

SN2

$\text{CH}_3\text{-CH}_2\text{-O}_2$

CONCERNATA

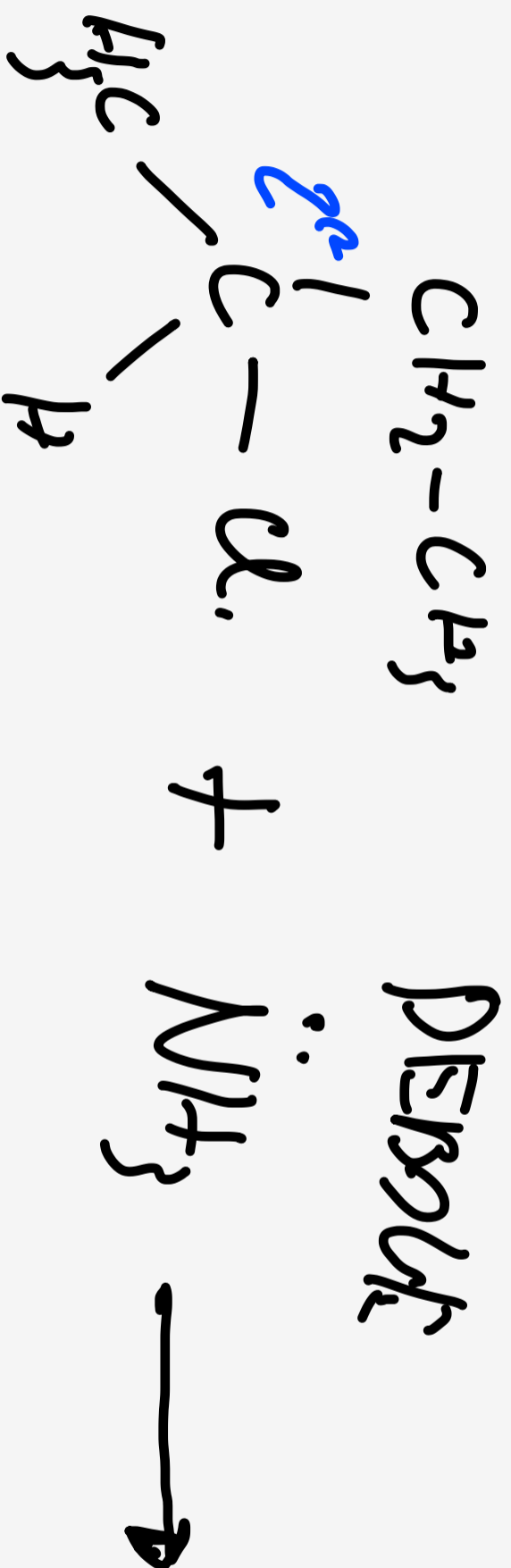


E2

$\text{H}_2\text{C}=\text{CH}_2$

ETENE

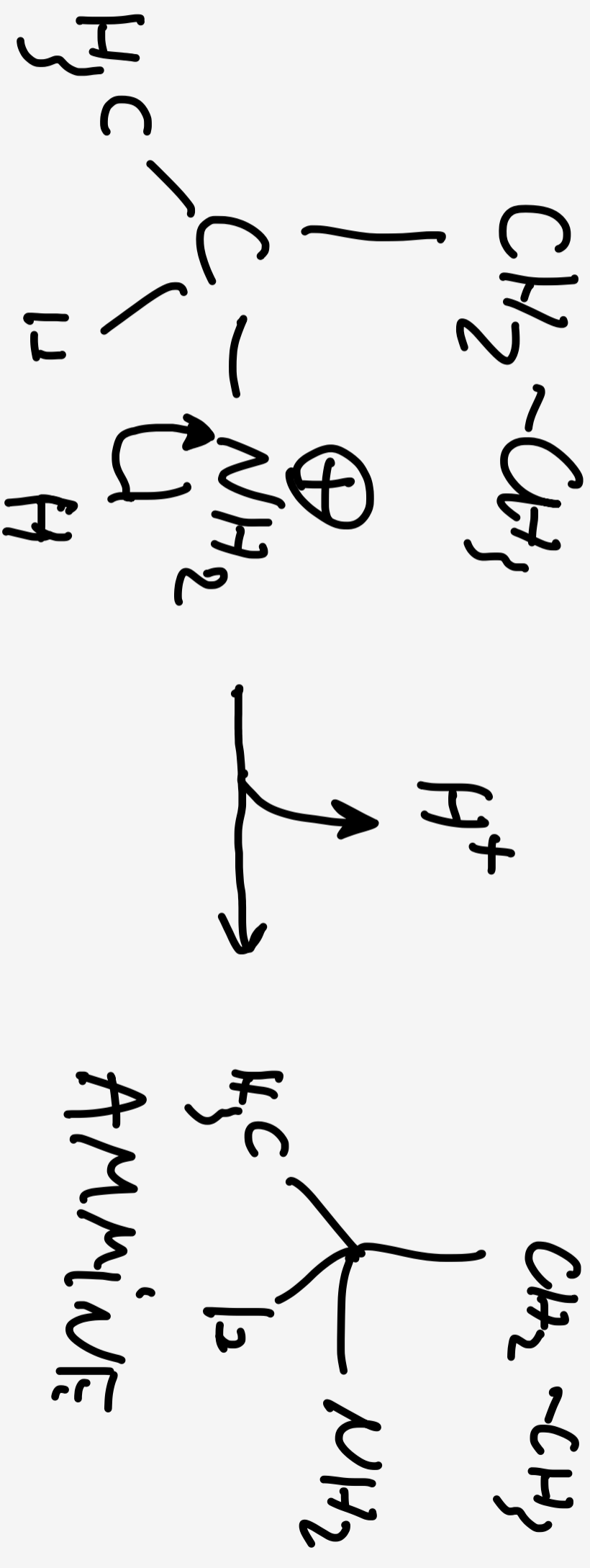
ESTERIFIED



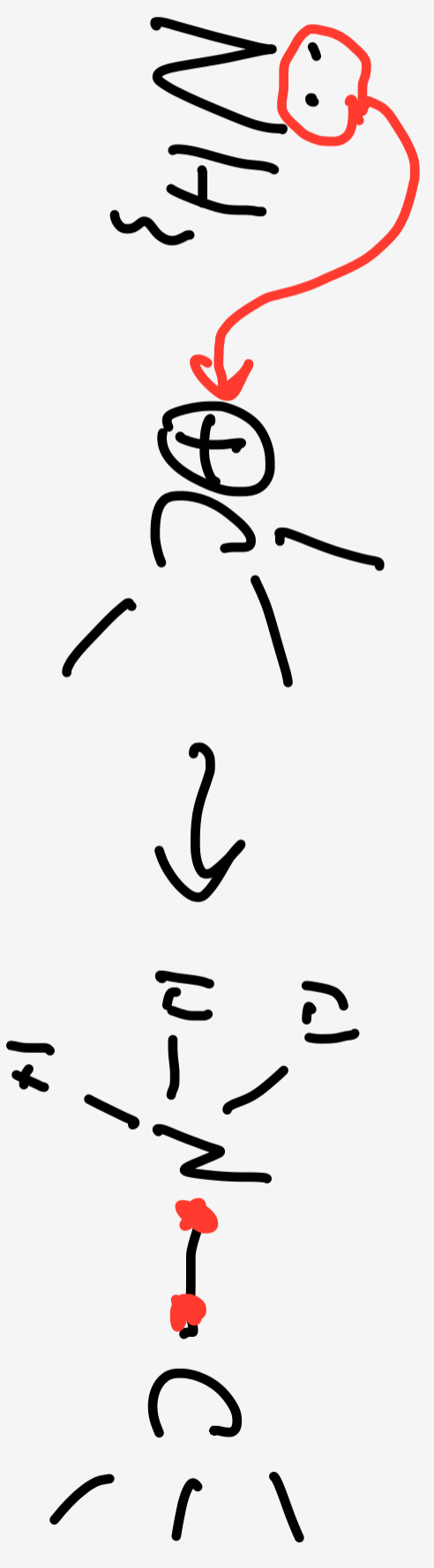
Scrub 1 Phosphor

CON AVAILABLE METAL IONS AVAILABLE





IMPRÉGNATO 12 BORRIGITTO X FERRE
 NUOVO LIBRO



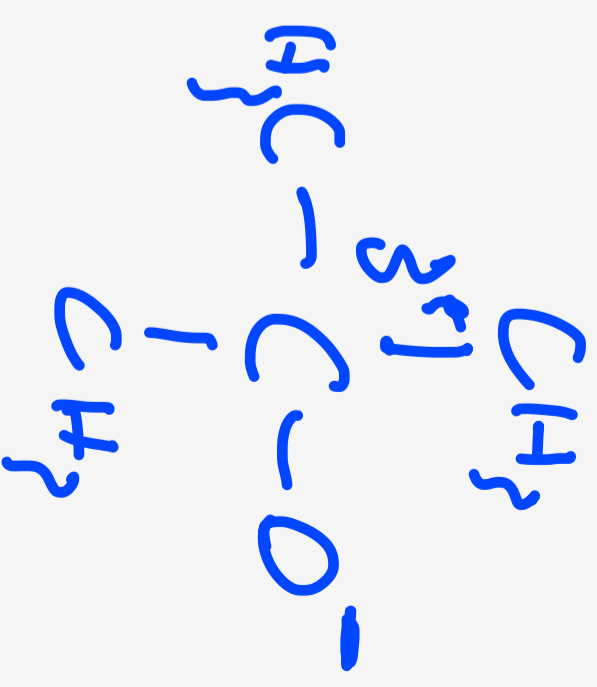
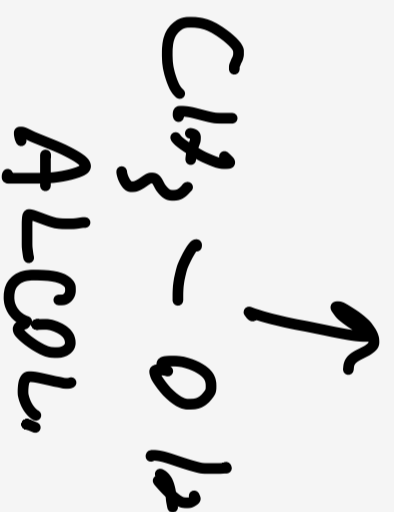
ALOG-ENUNDO 2^o

FAVORINIHI ELIMINAZIONE

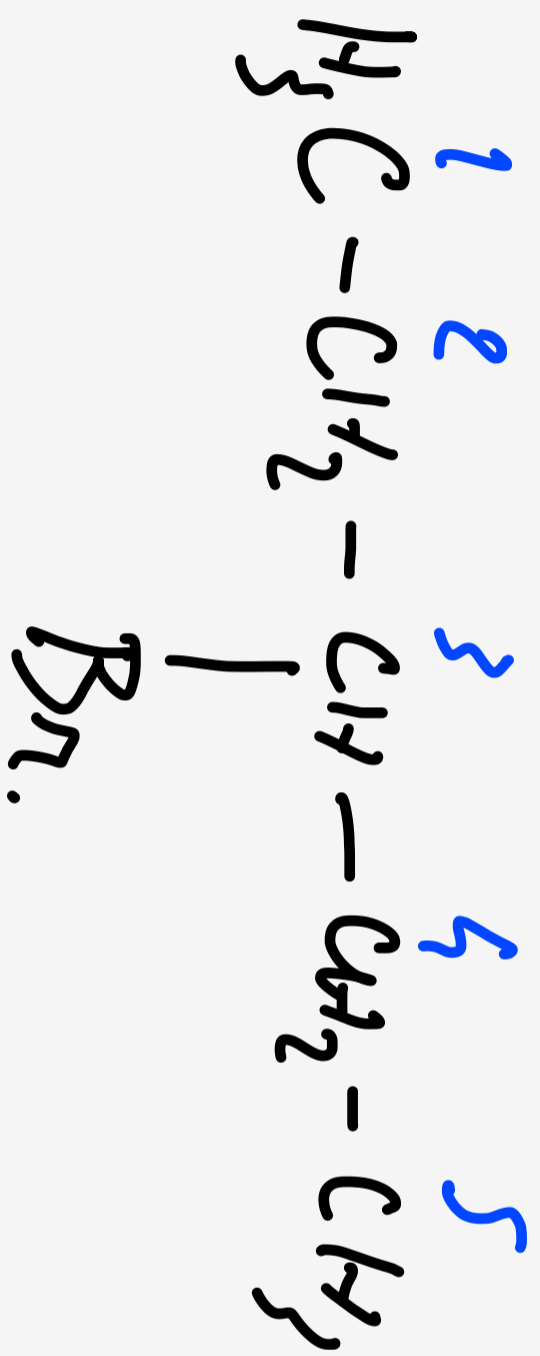
FAVORITA POA BASI FORTE

IN GOMMATE STERILE MENTE

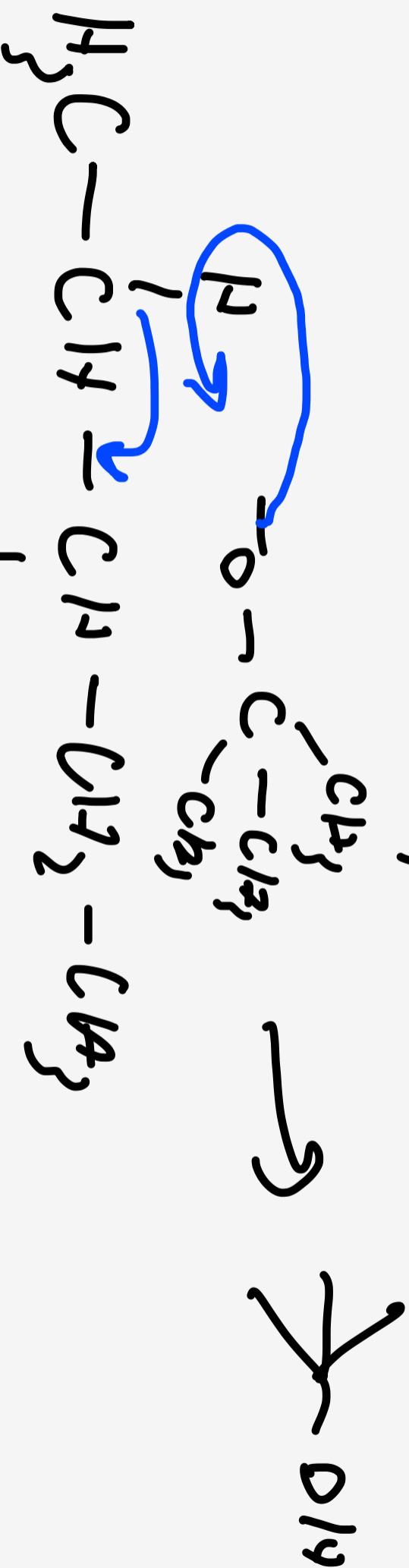
BASI



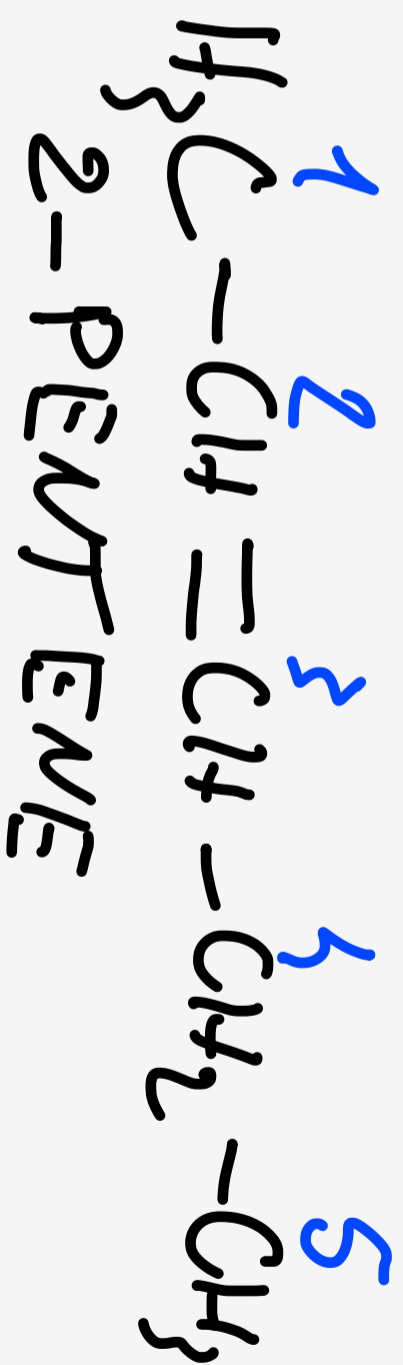
BASSE NON
NUCLEOFILA

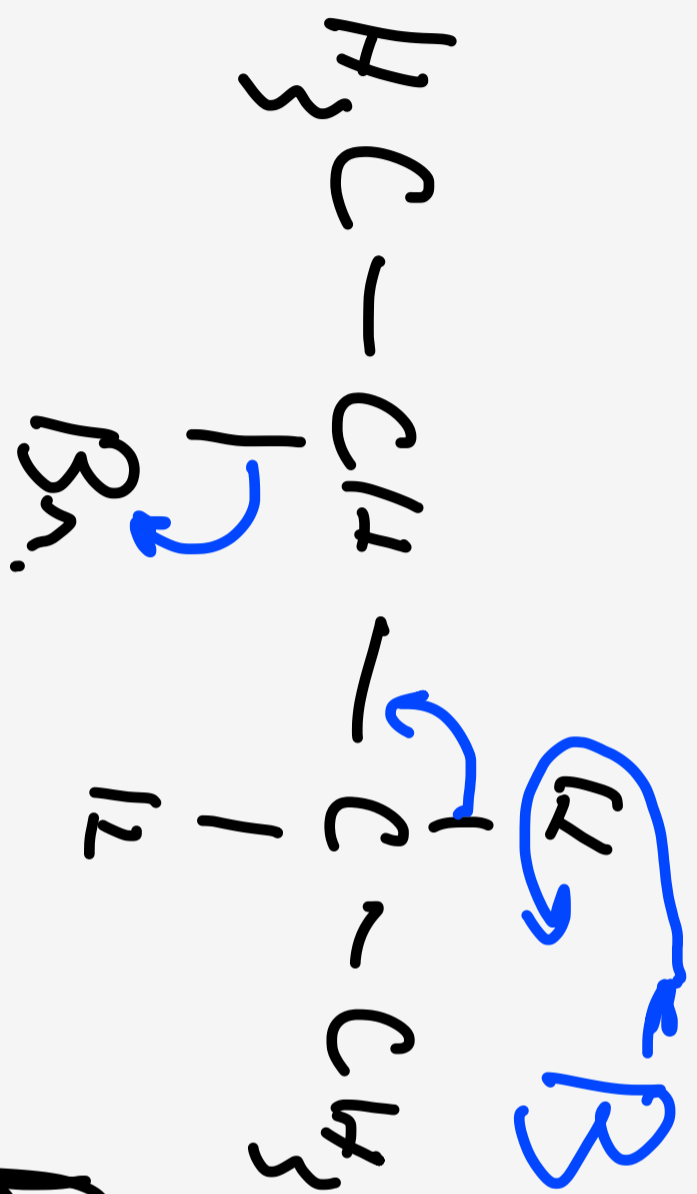


3-Bromopentano-2-pentano



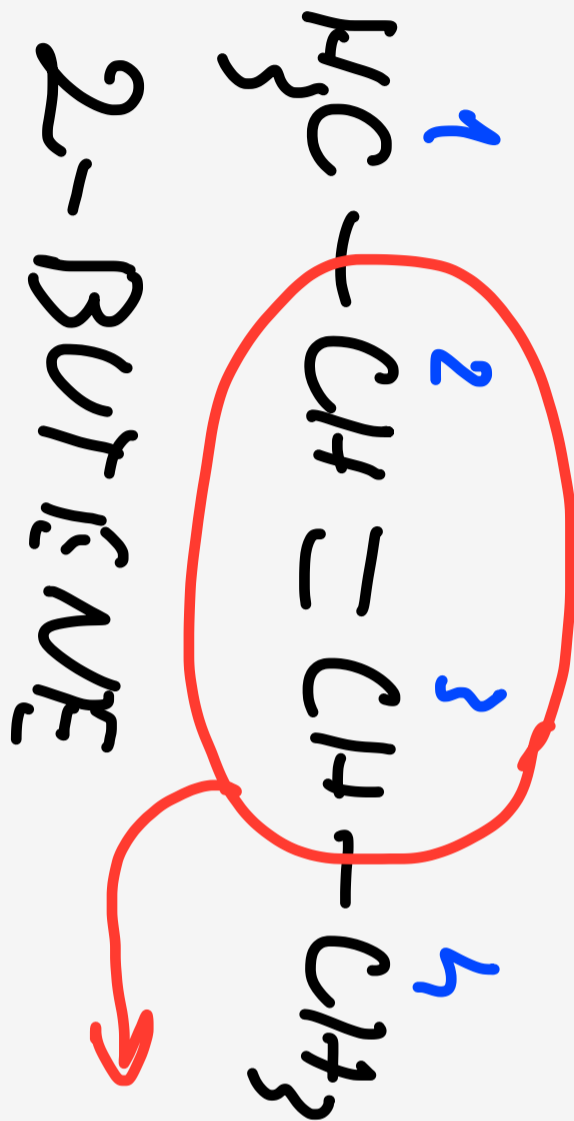
E2





RECOLLA MI

2A1+2E1



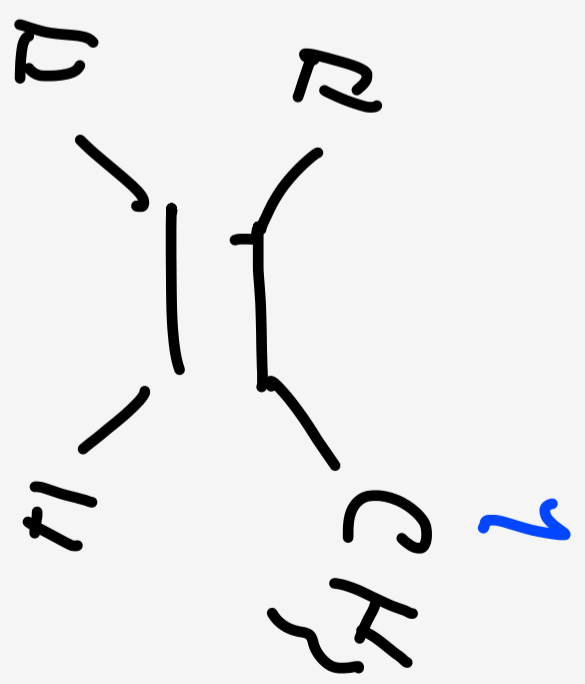
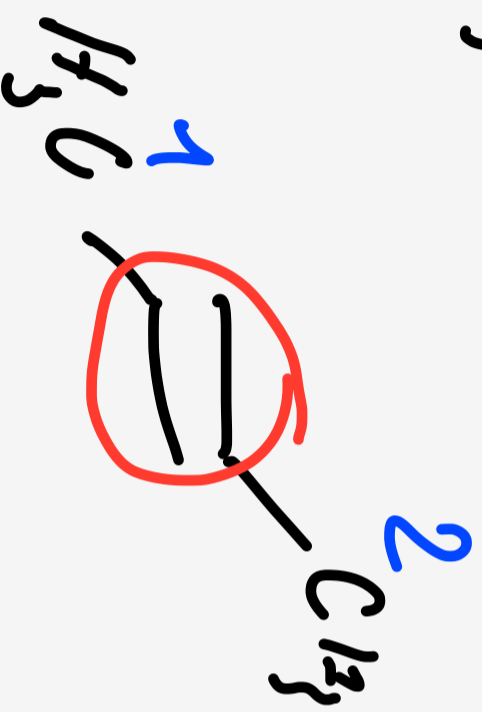
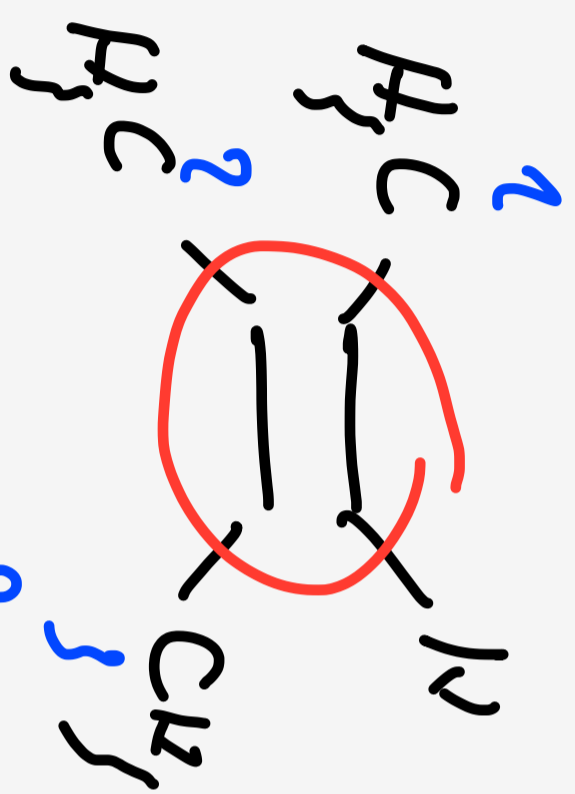
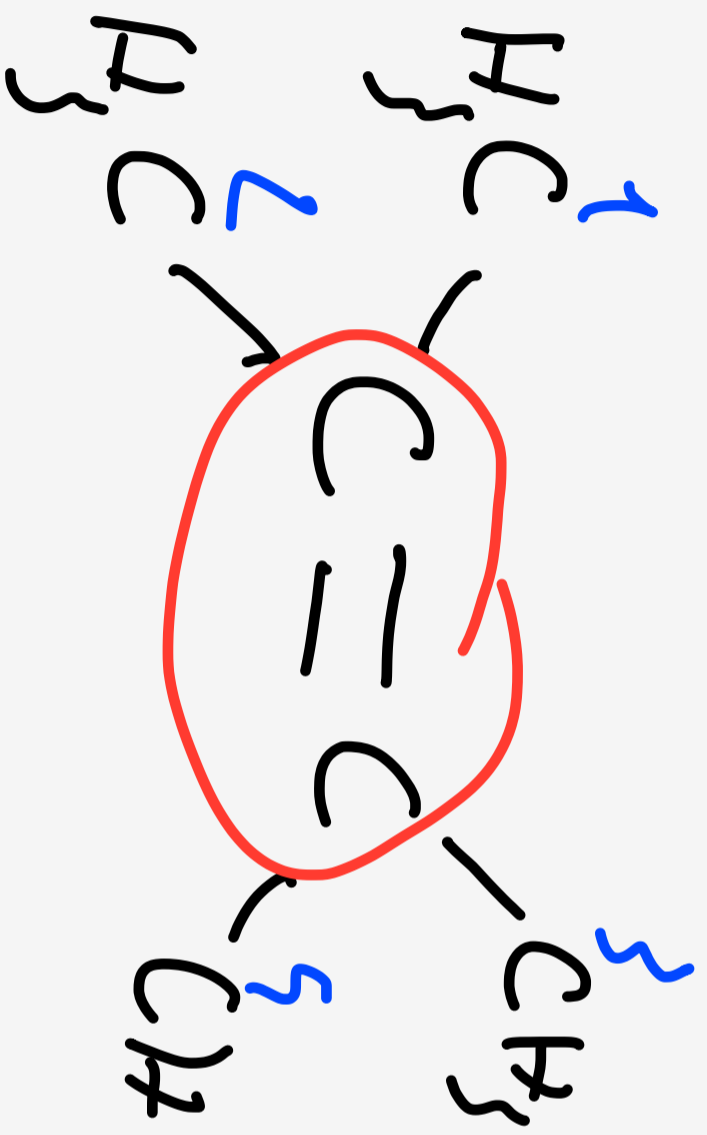
80% ✓

2 ATOMI MI C4R3.

20% ✓

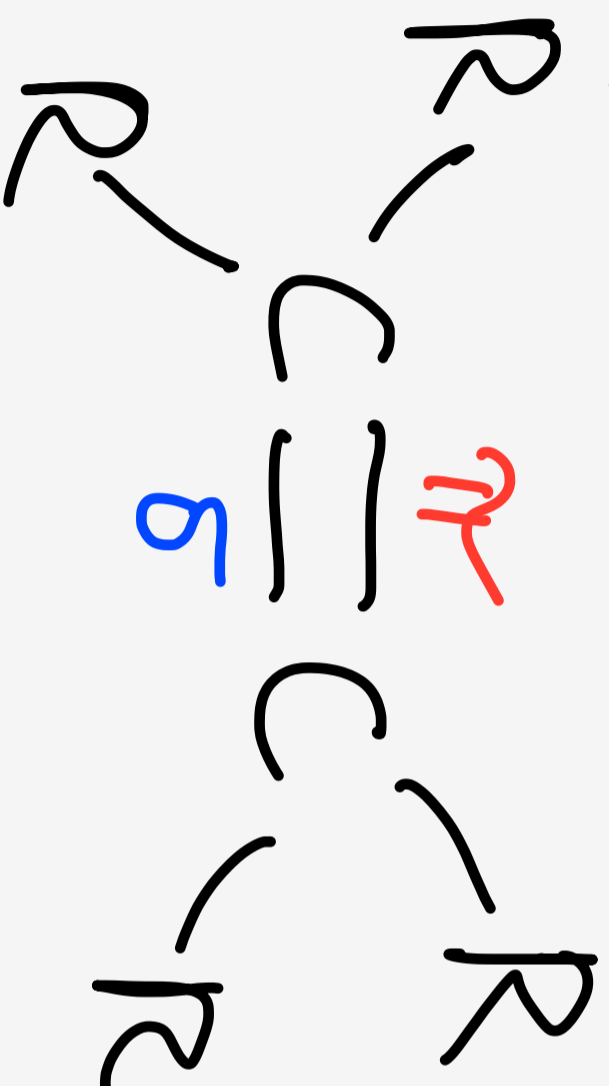


1 ATOMO MI C4R3.



ALCCHENI

R = C, H

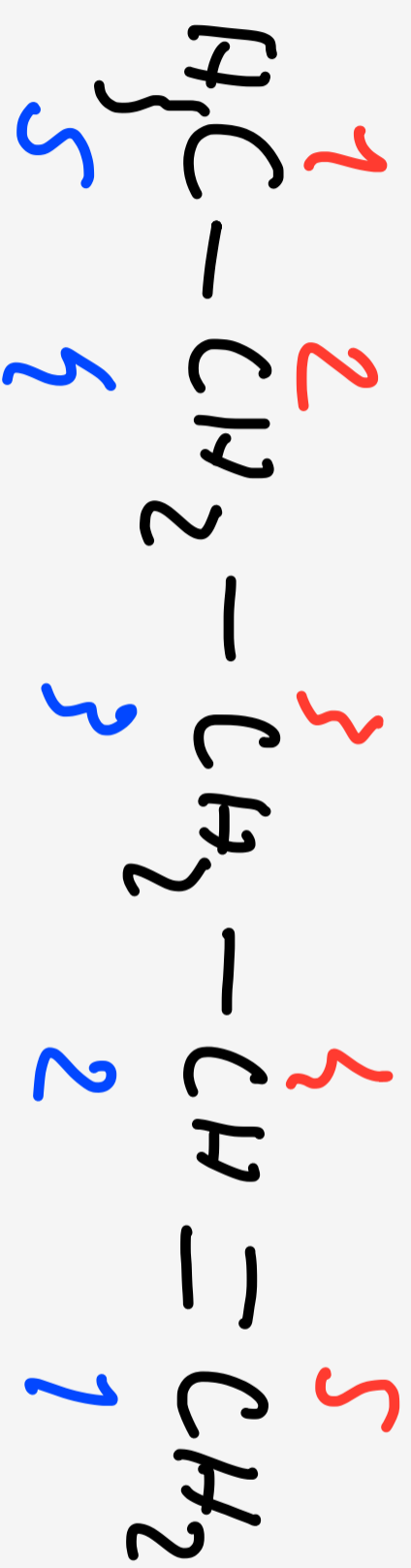


SP₂

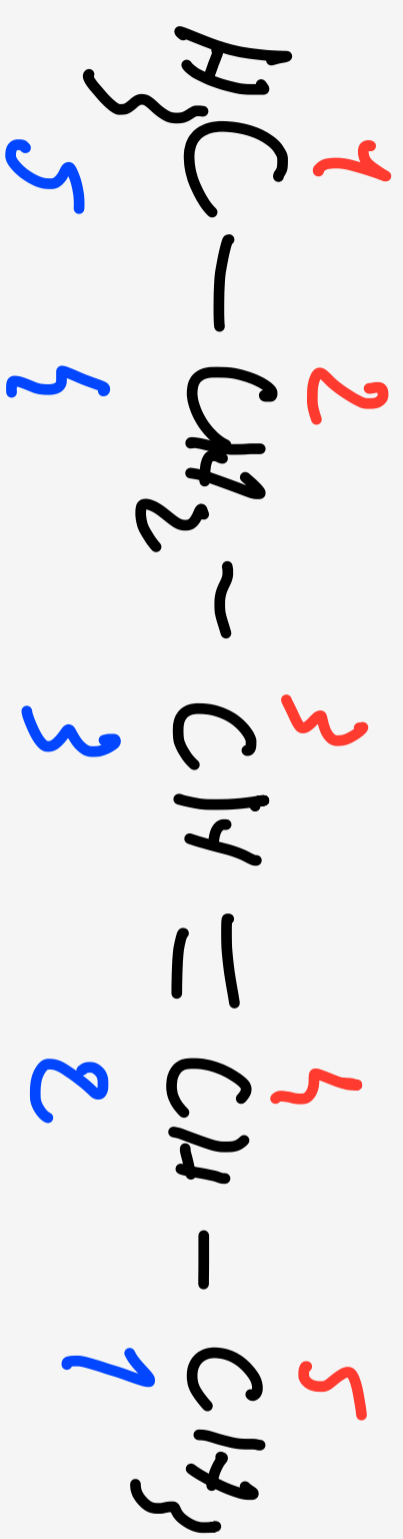
NUCLEOFILO

E[⊕]

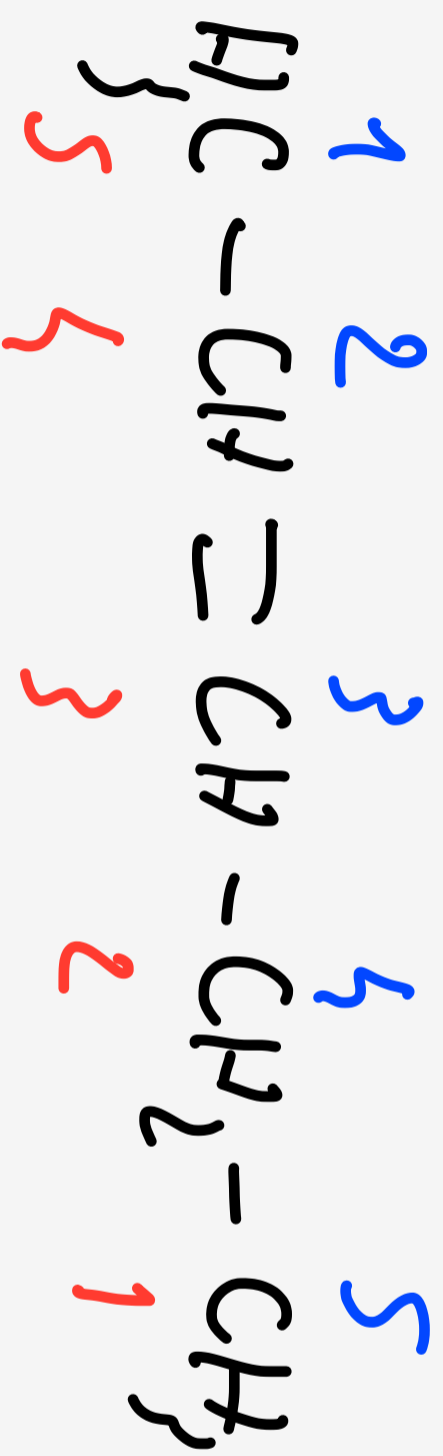
ALCHENE



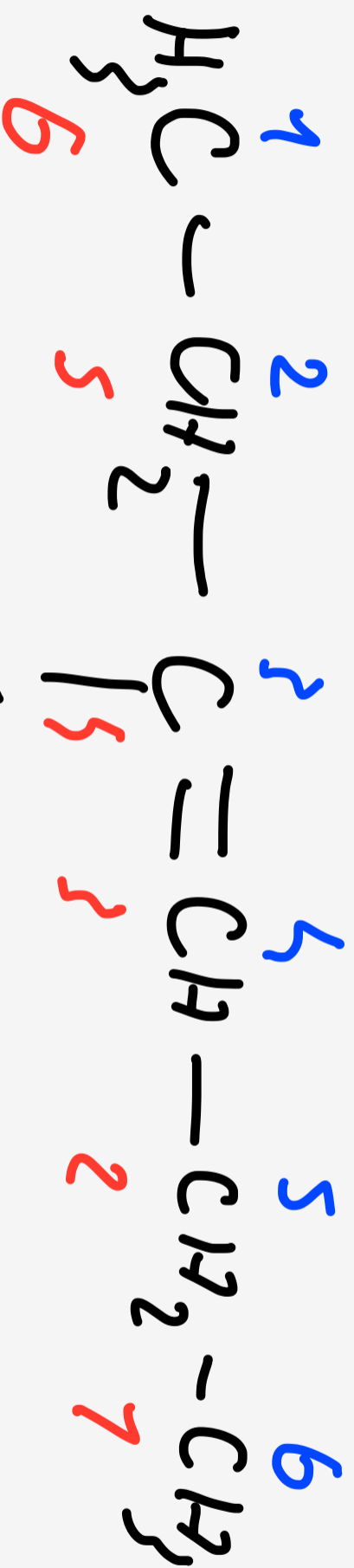
1-PENTENE



2-PENTENE



2-PENTENE

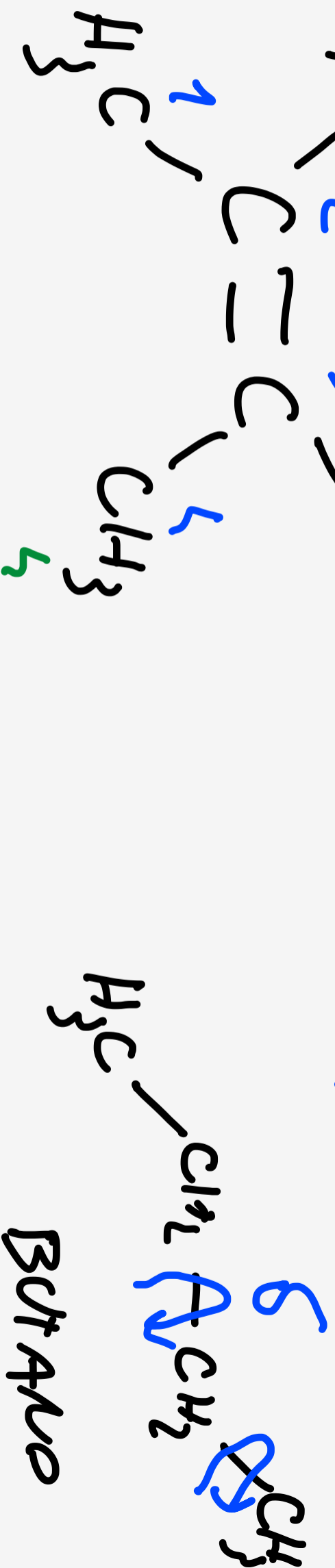


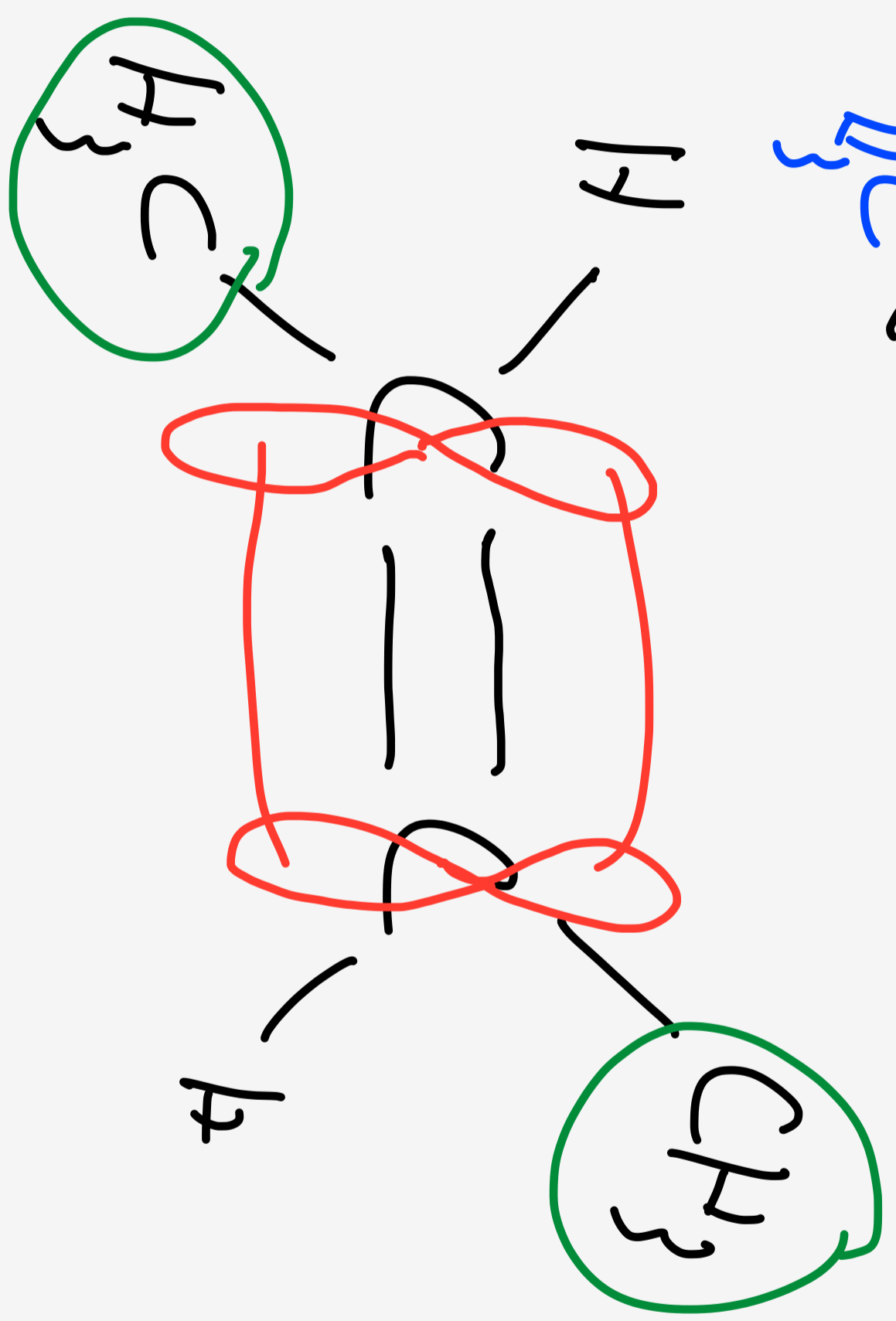
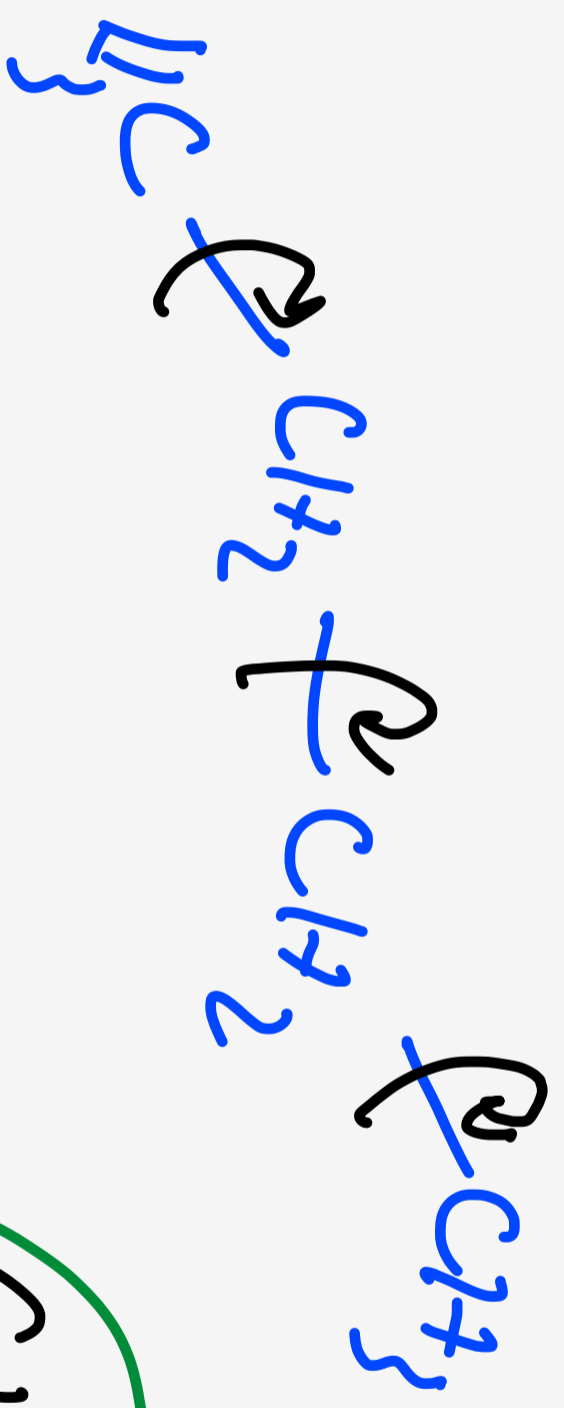
CH₂ | CH₃ 4-ETHYL-3-PENTENE

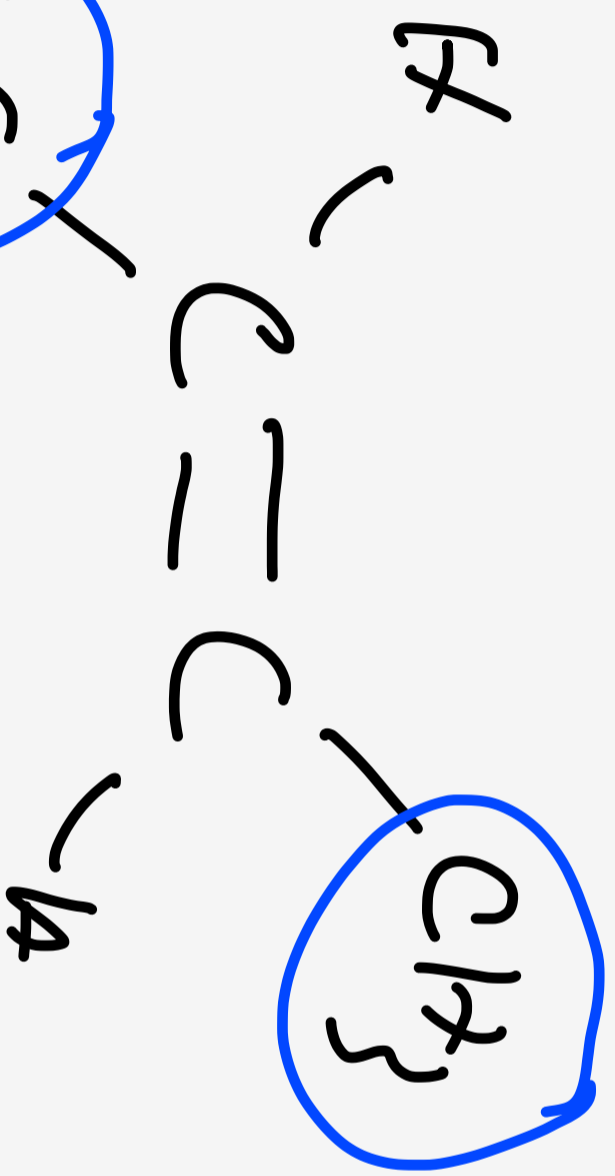
CH₃ 3-ETHYL-3-PENTENE

STEREO ISOMERIA

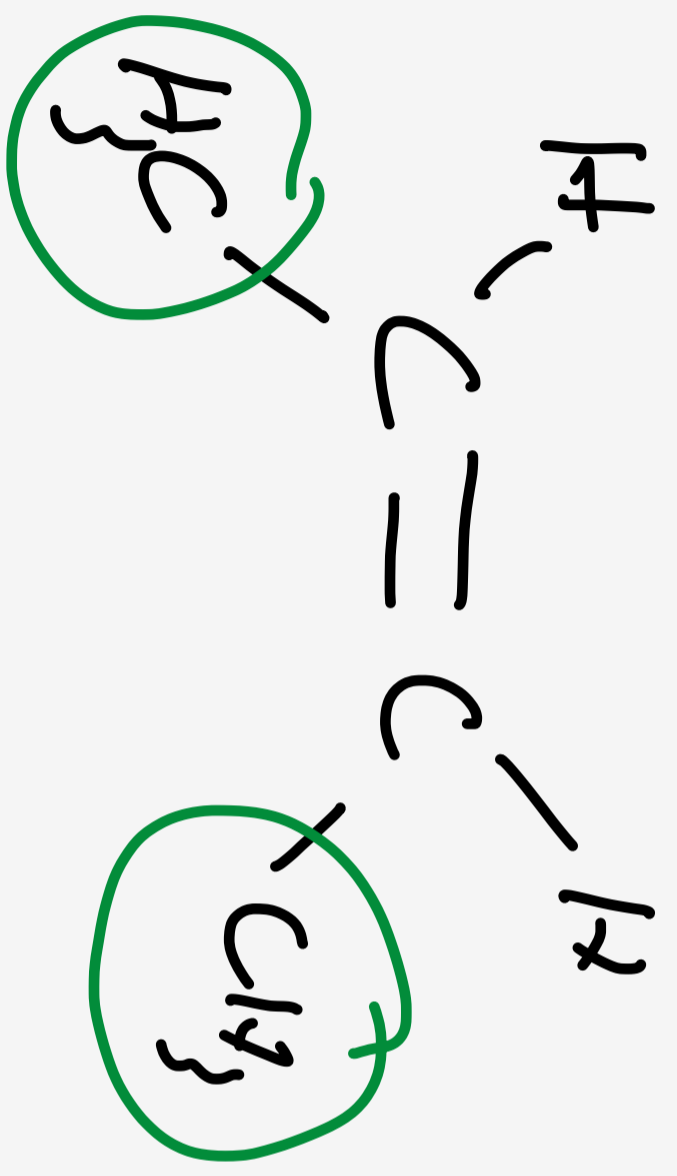
PROLli ALCHENI

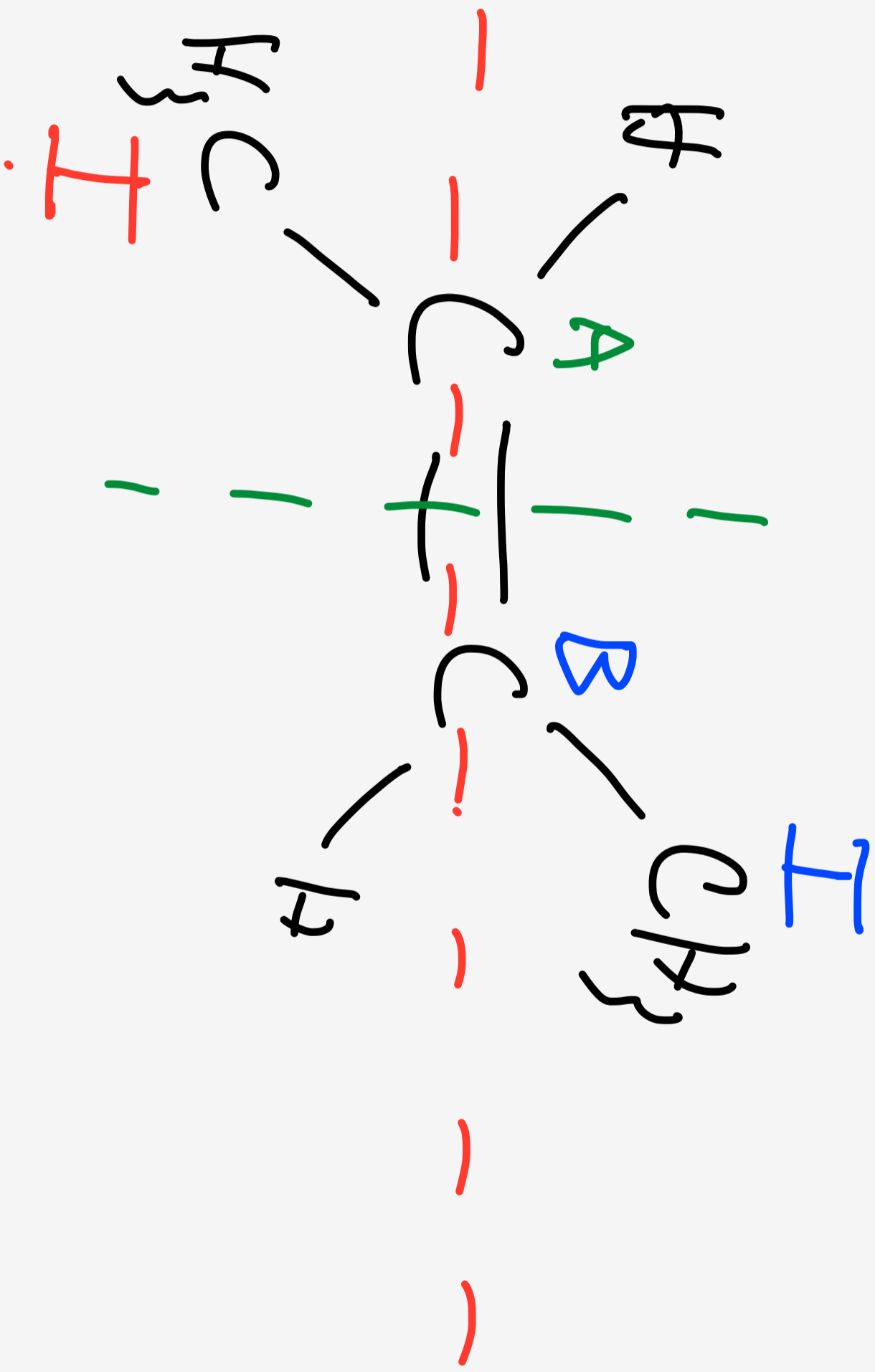




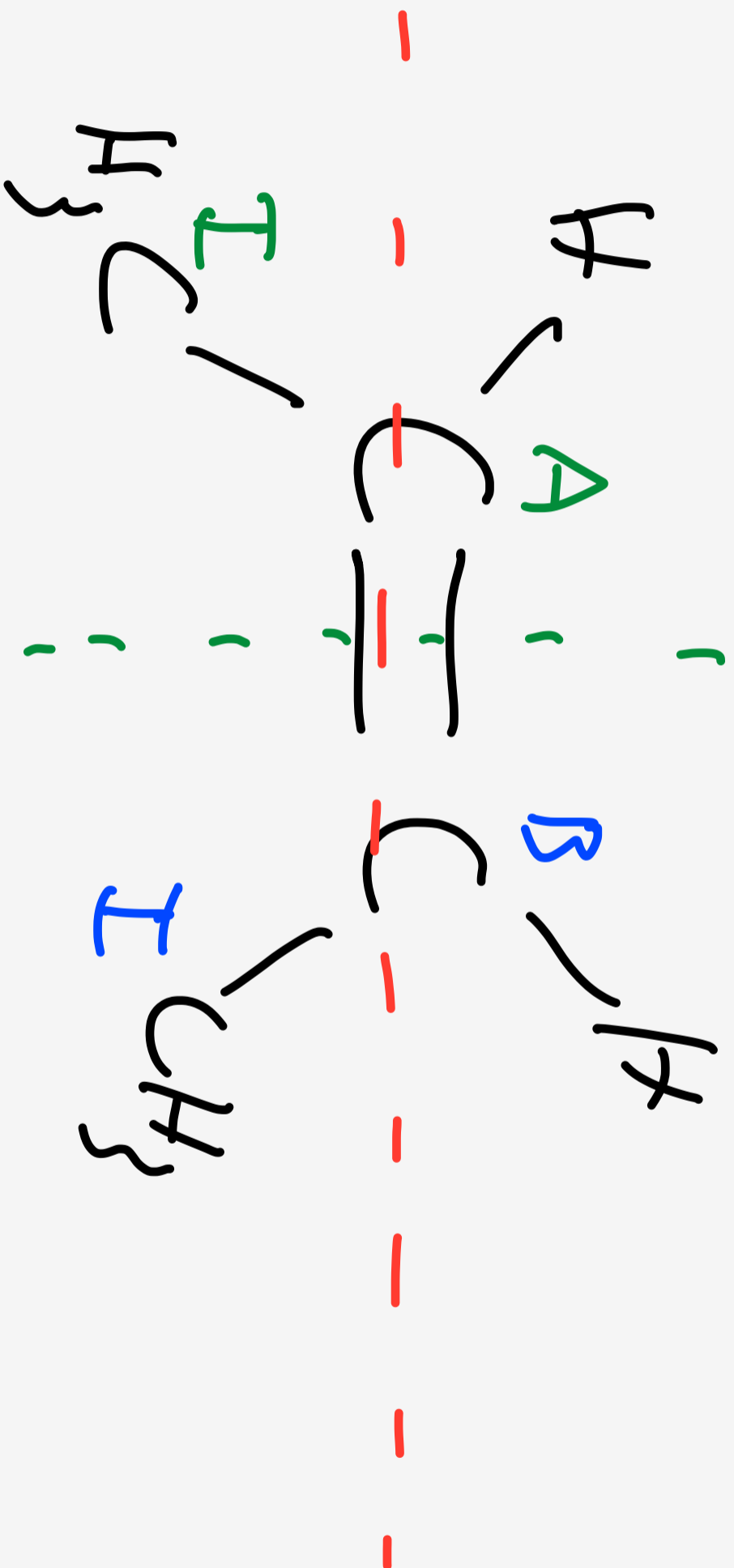


CIS/TRANS

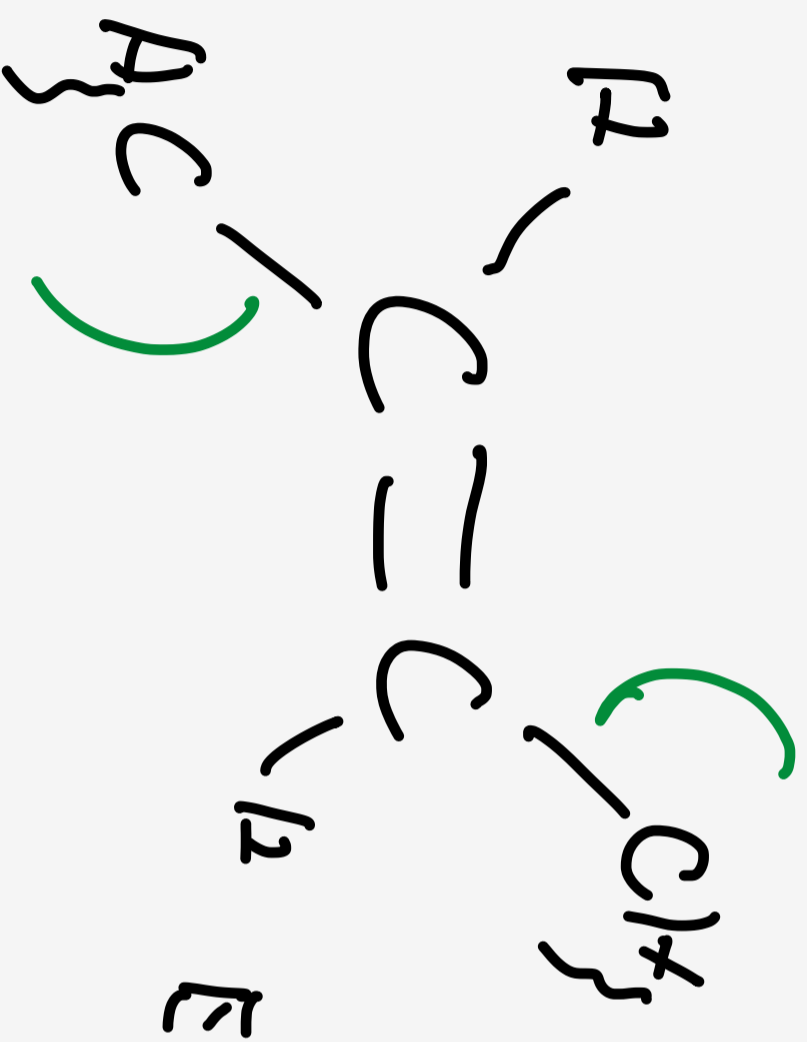




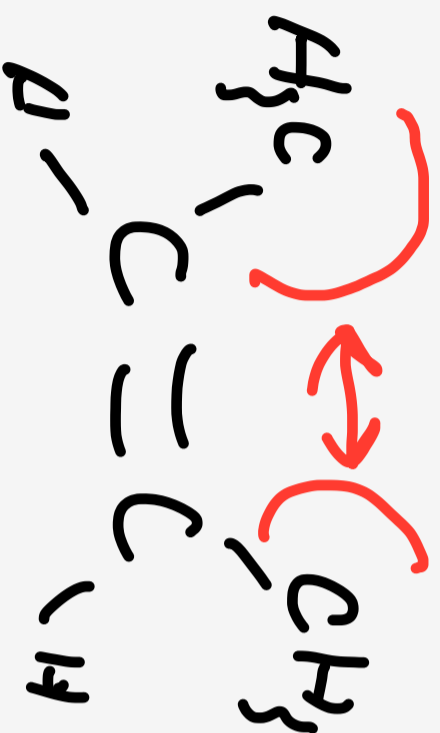
TRANS



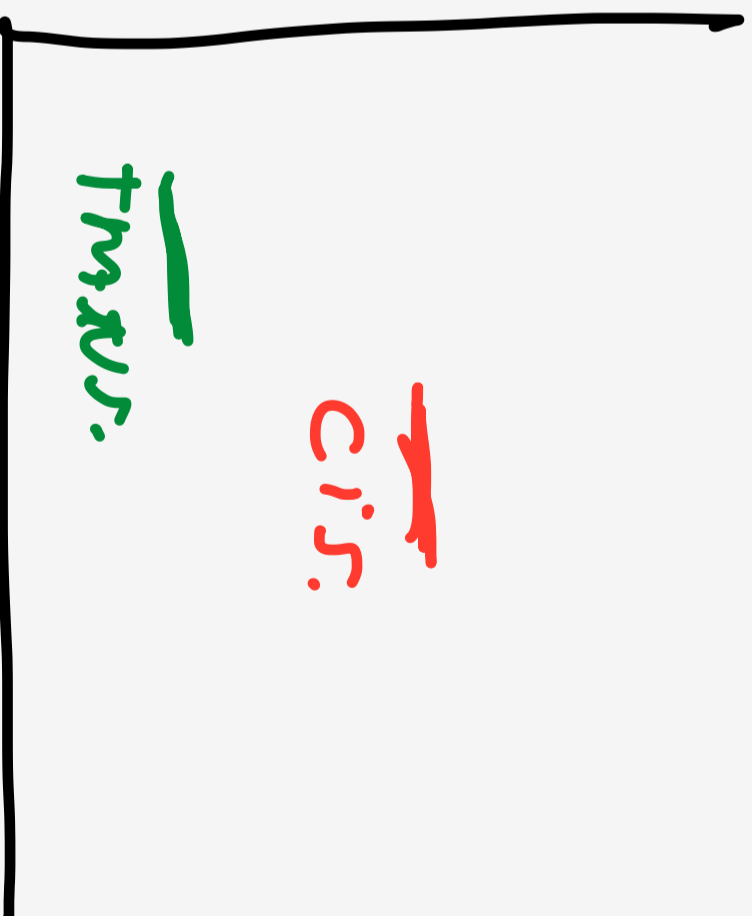
C15

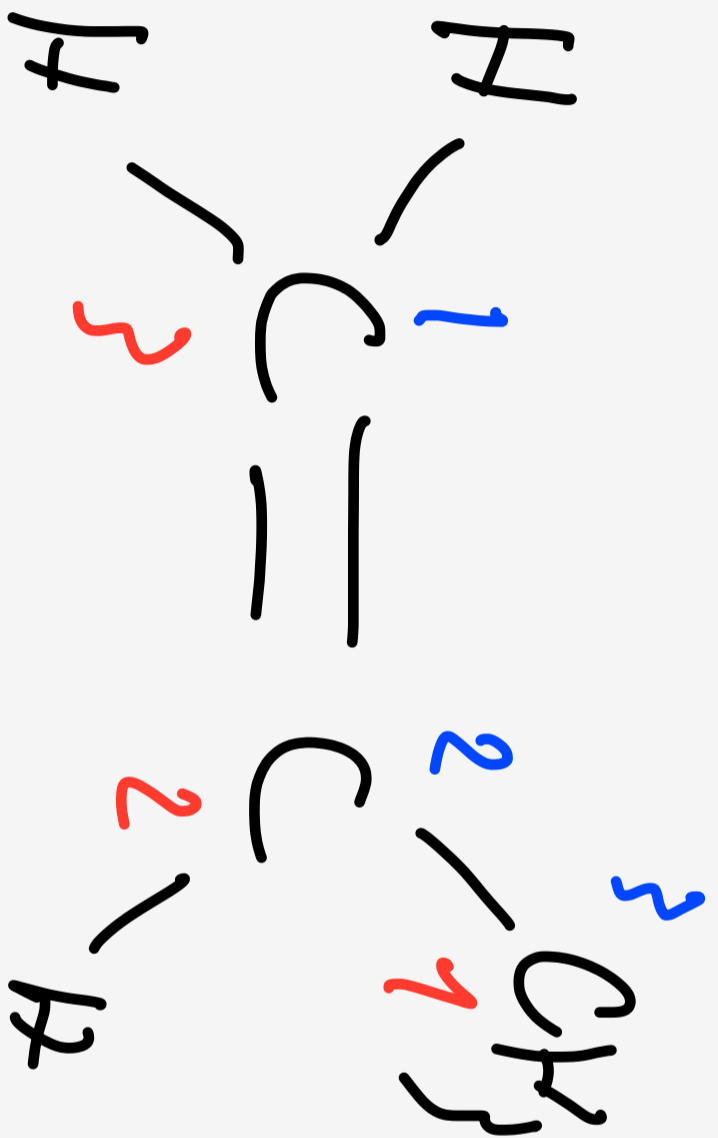


TRANS-2-BUTENE



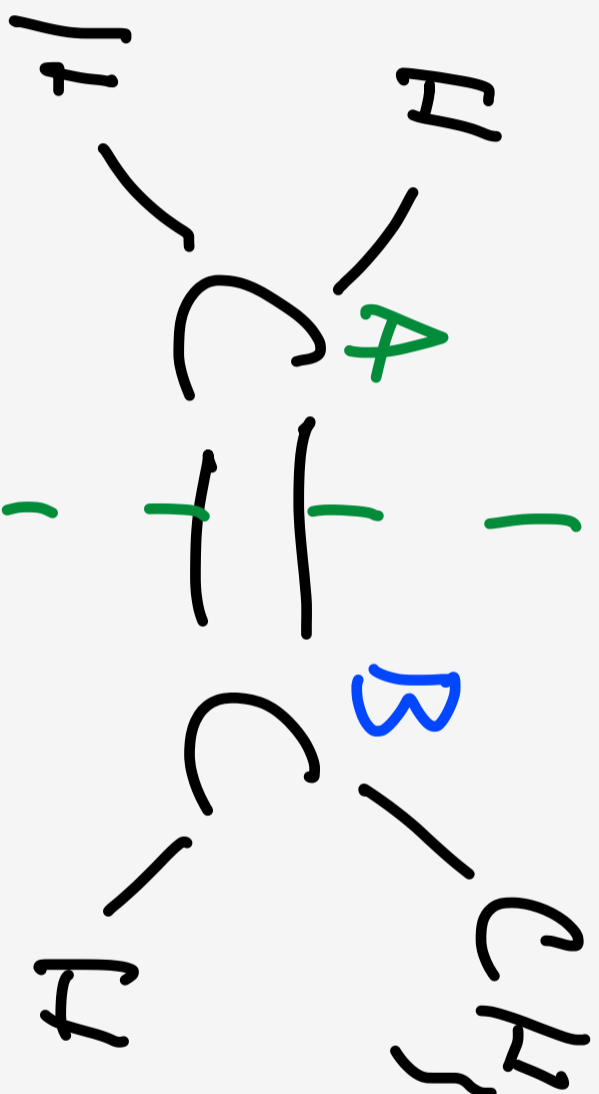
CIS-2-BUTENE



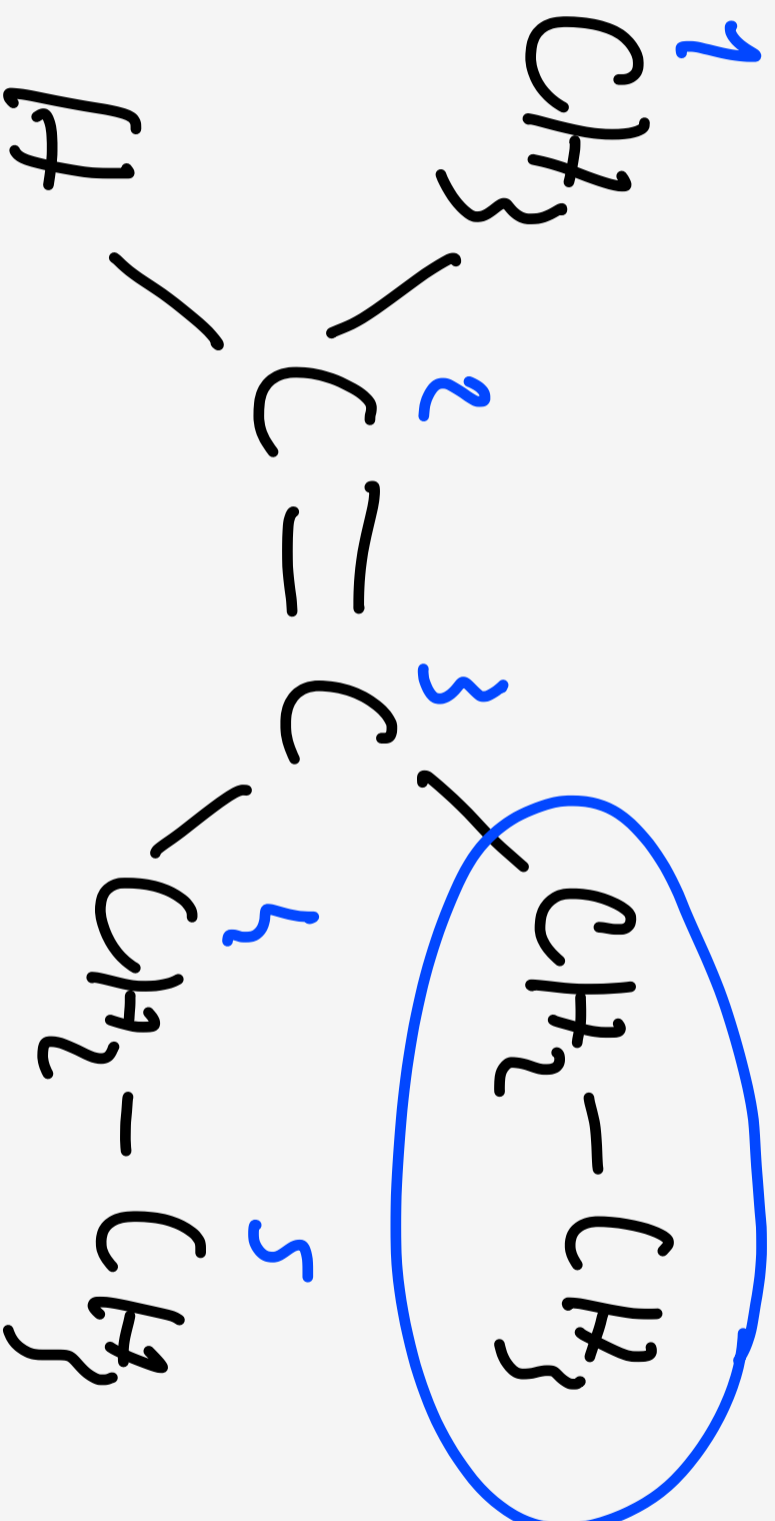


① Propene

I



PROPENE



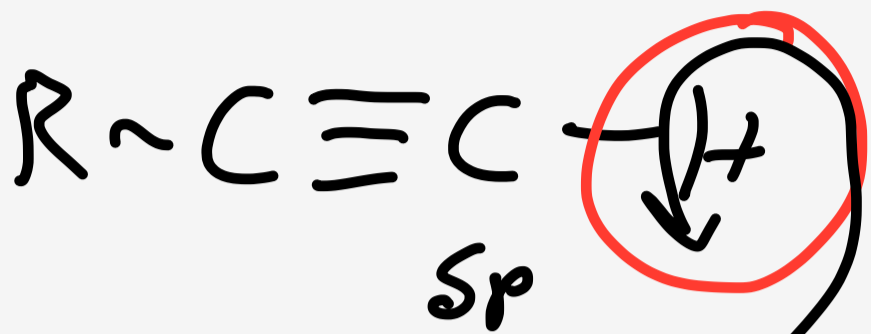
3-hexil-2-pentene



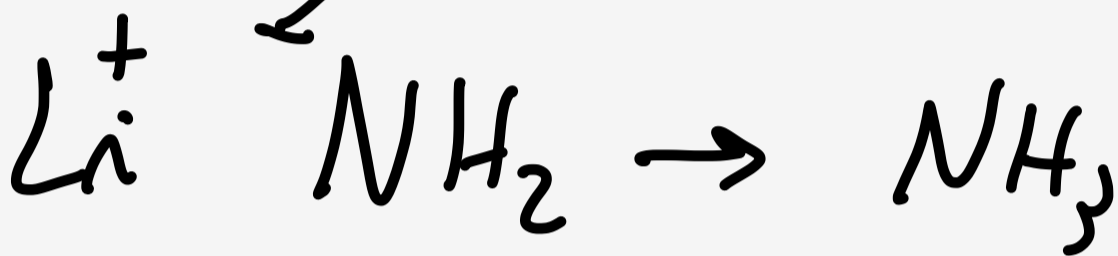


2-PROVITENE

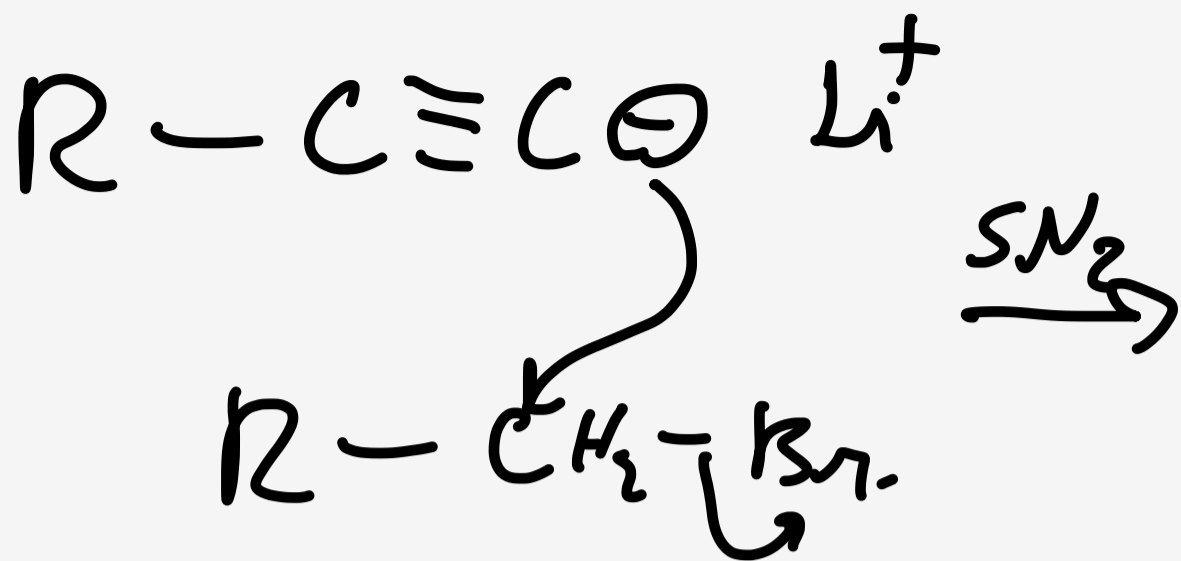
GIS-2-PROVITENE



IDROGENO ACIDO
 $pK_a = 25$



ACETILURO di LITIO



ALCOL

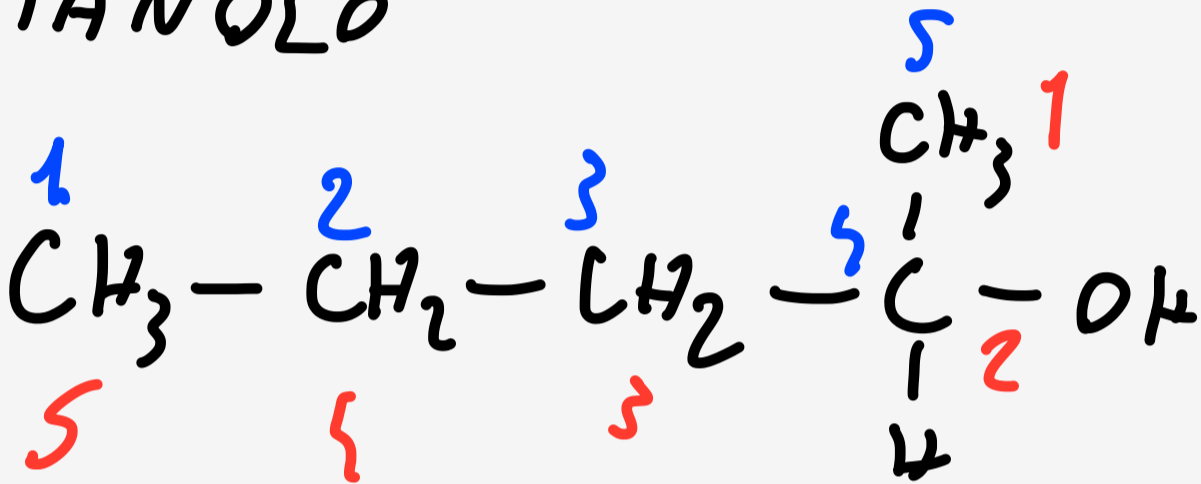


ossidril



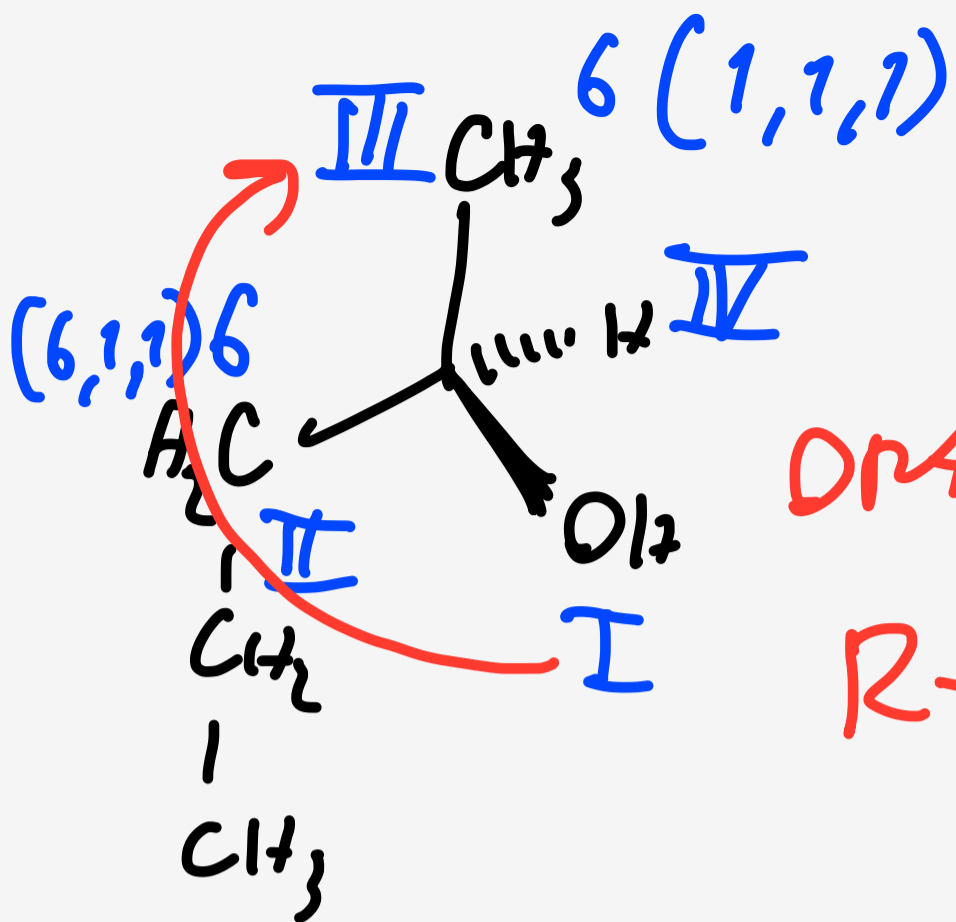
alcol

ETANOL



2-PENTANOL

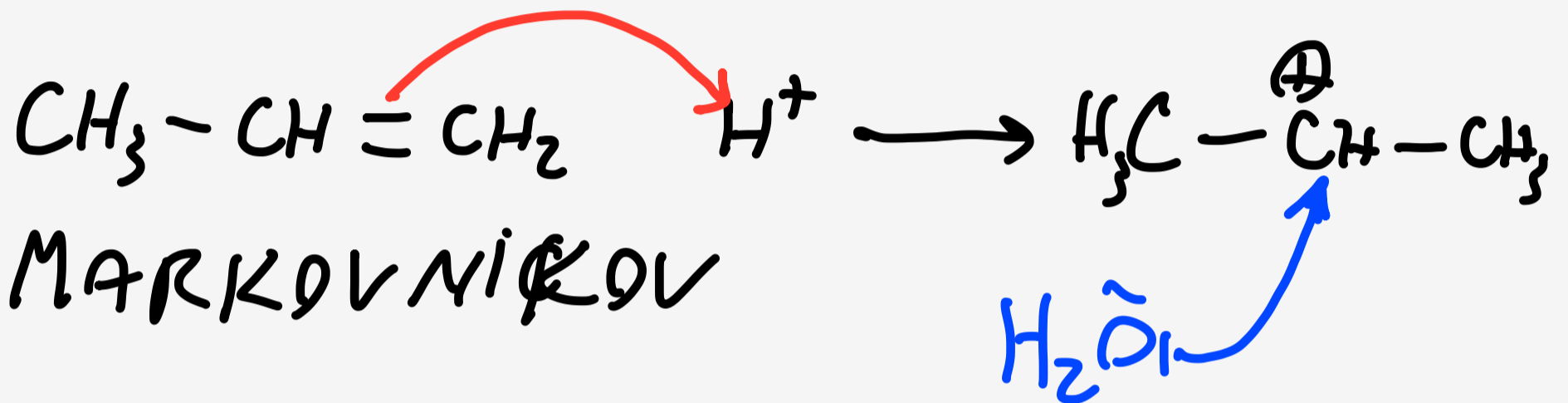
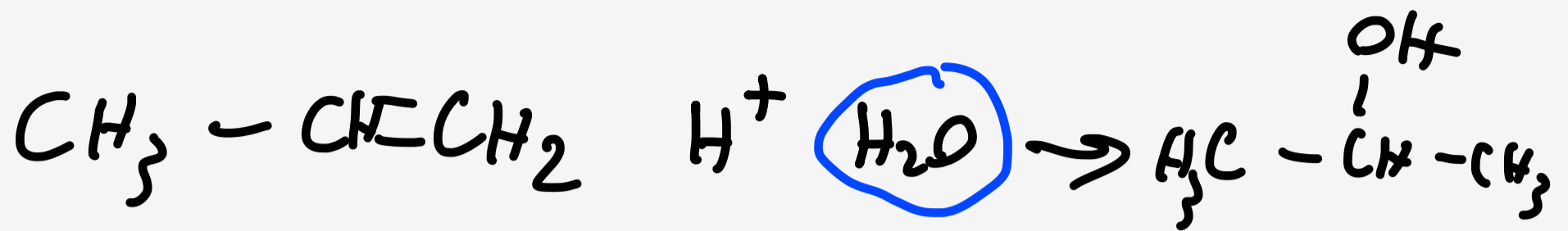
R
S

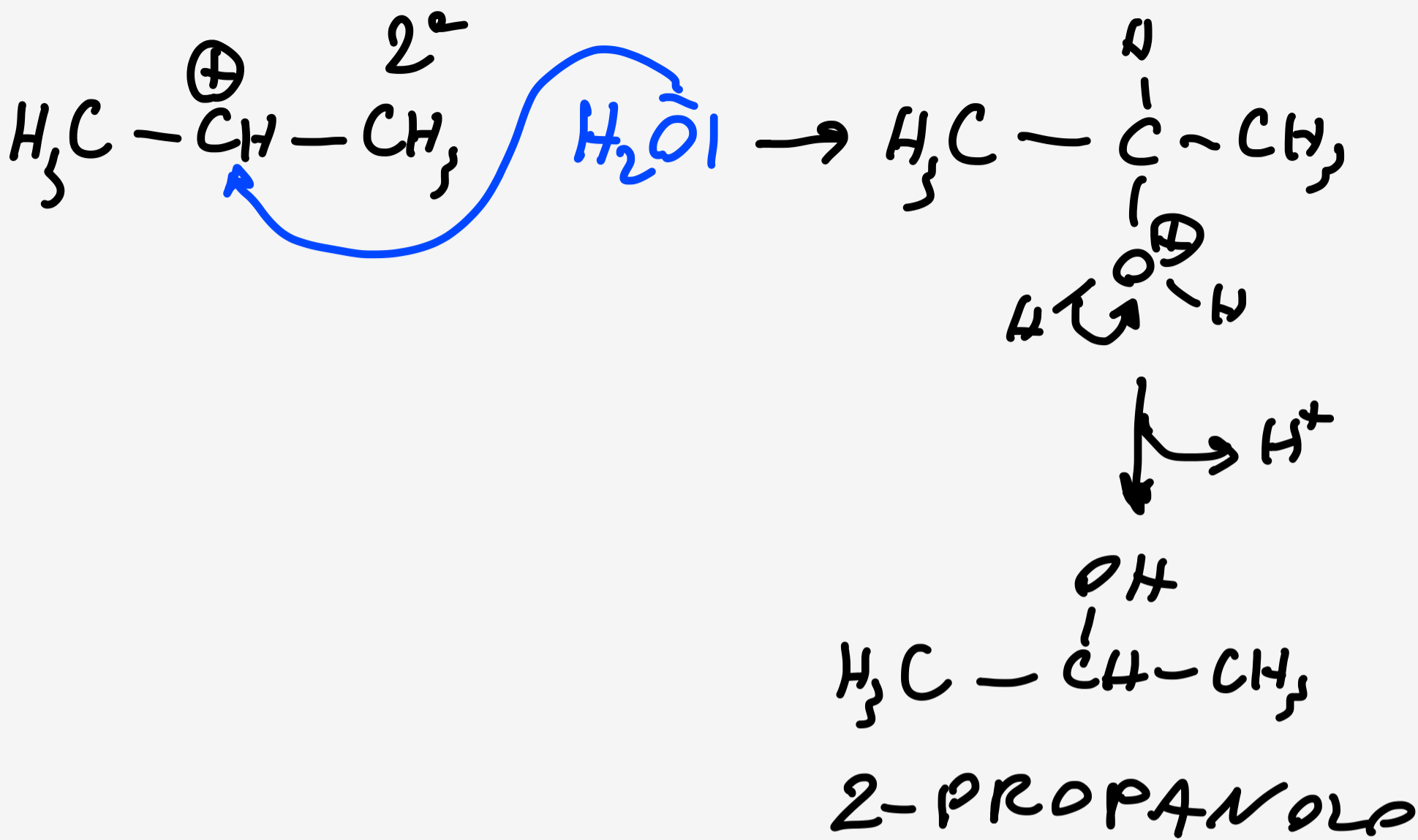


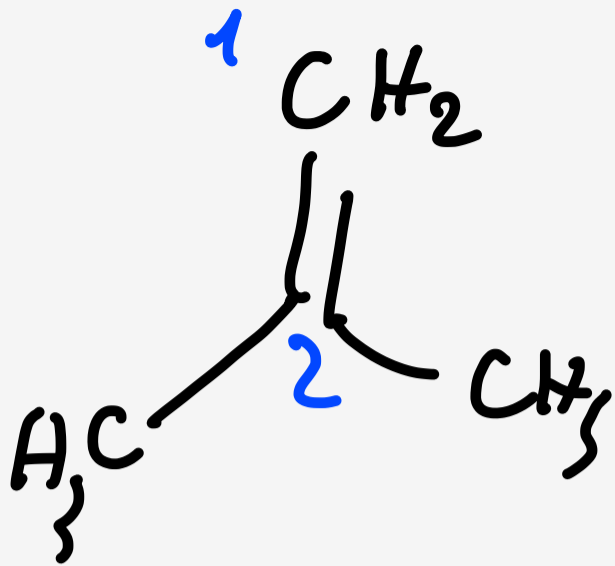
OPRIMO

R-2-PENTANOL

PRODUZIONE DEGLI ALCOLI

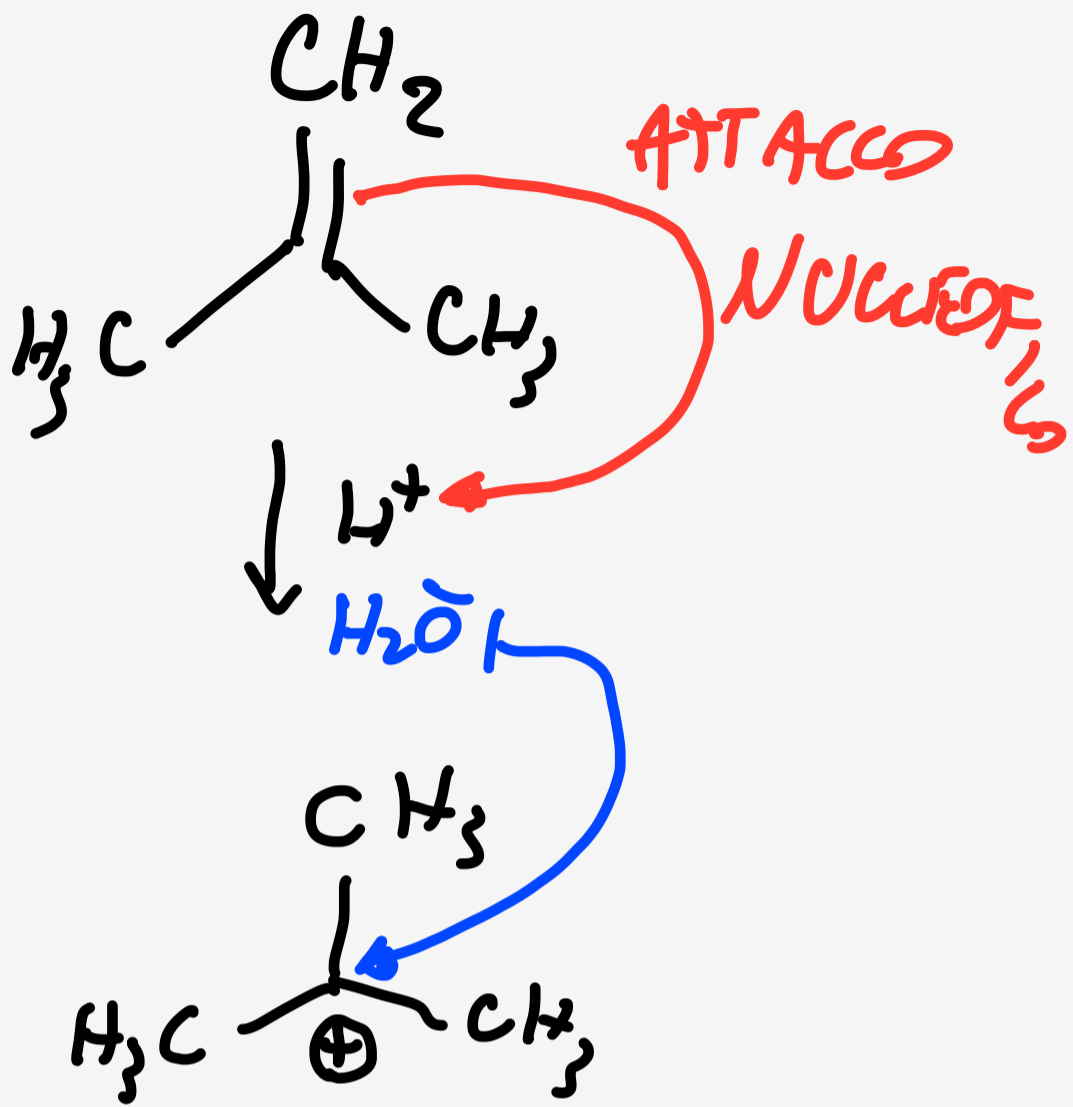


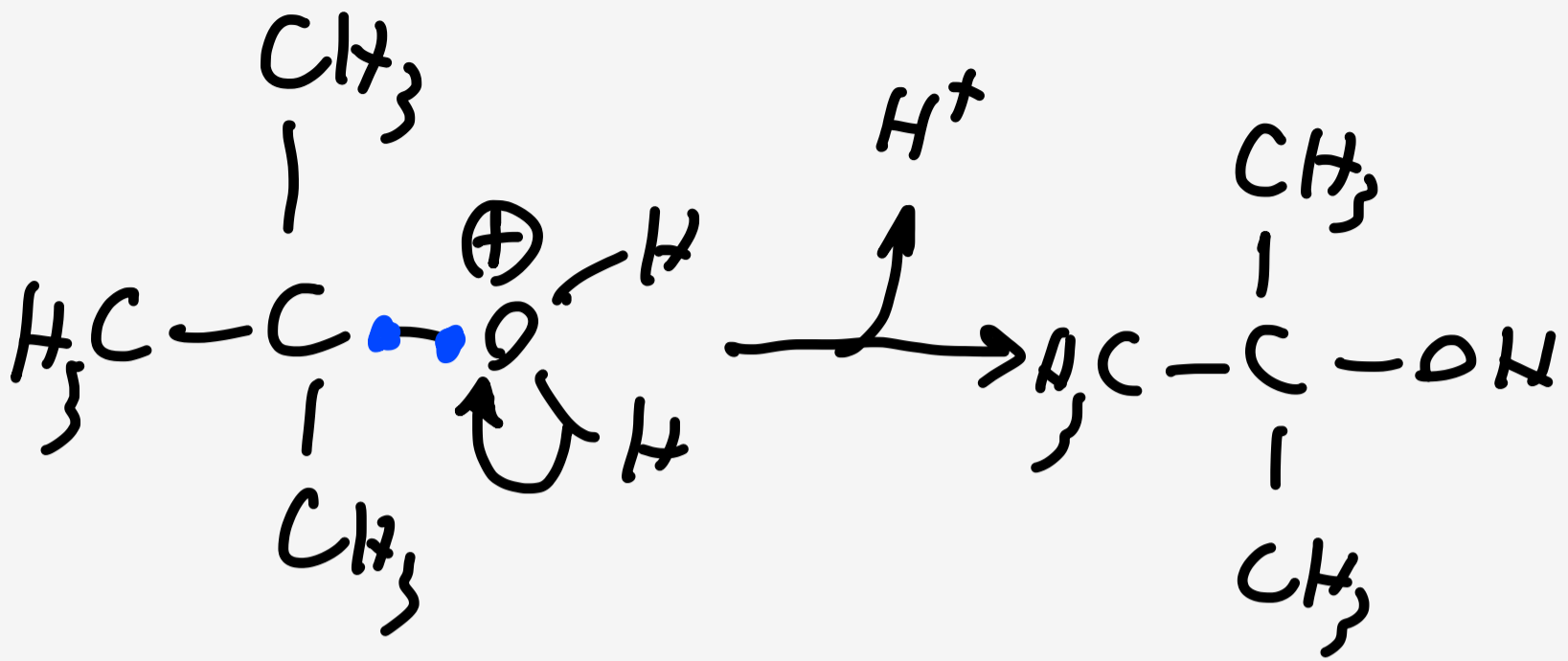




ISO BUTENE

2-METIL-PROPENE

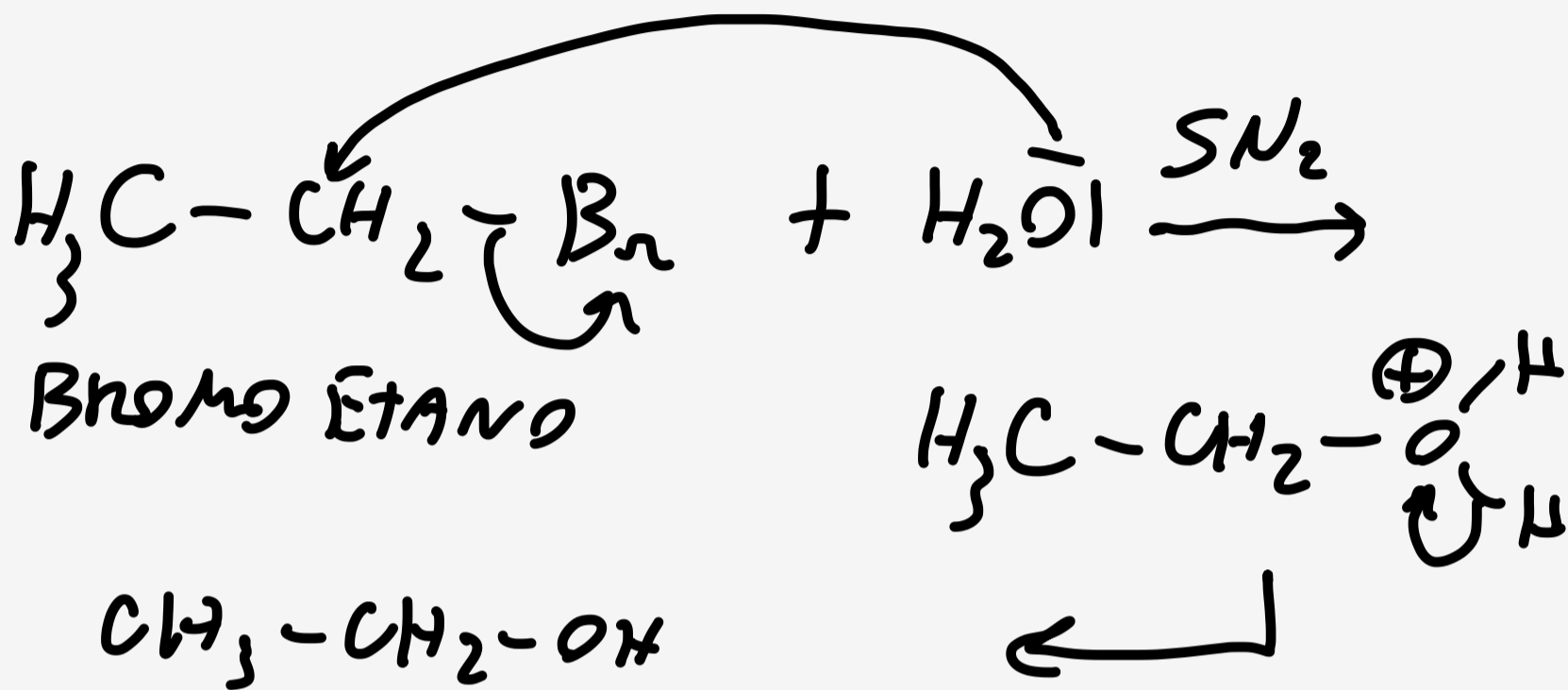




TER-BUTANOLO

2-METIL-2-PROPANOLO

2° METODO DI PREPARAZIONE ALCLI.



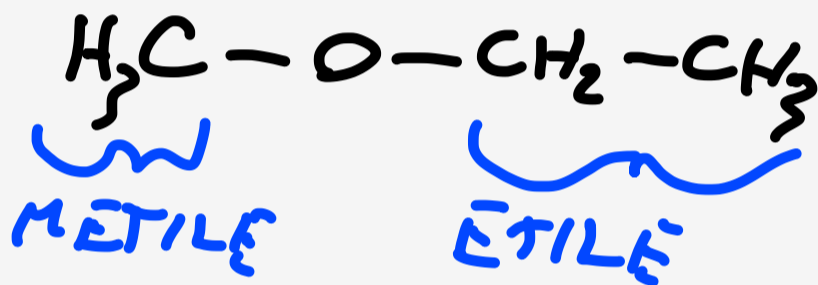
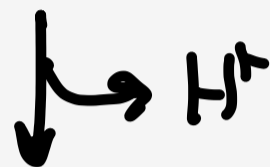
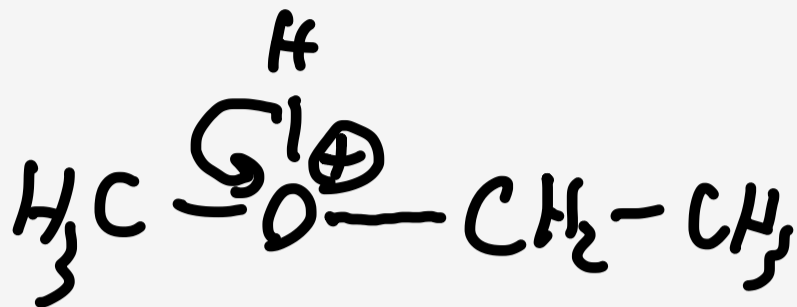
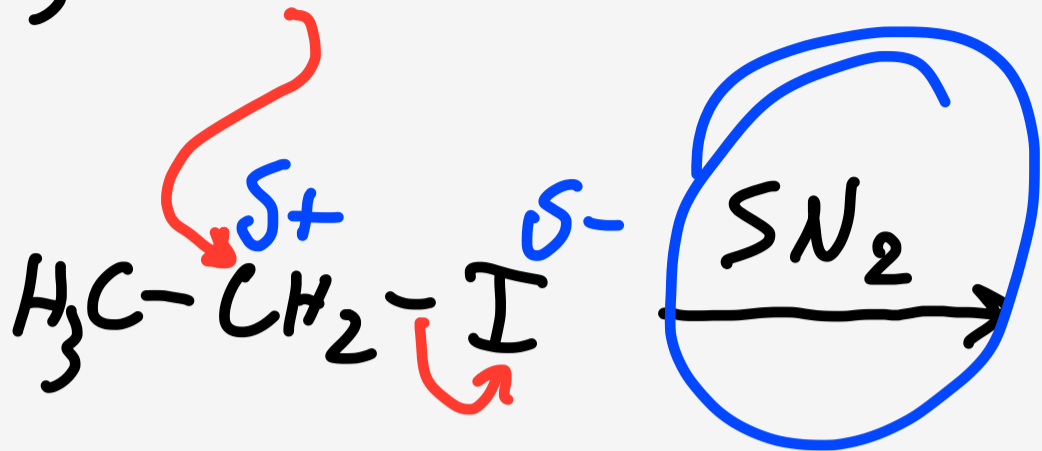
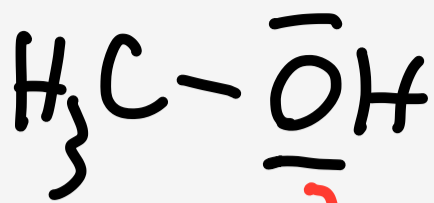


SEMPRE
NUCLEOFILO

- 1) ETERI
- 2) EPOSSIDI
- 3) ACETALI

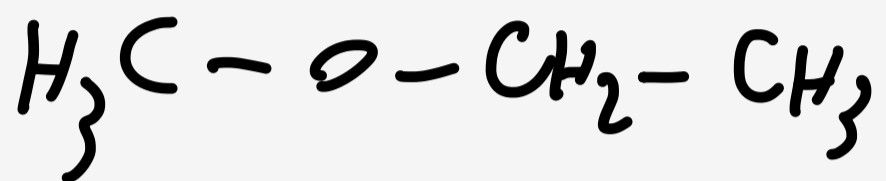
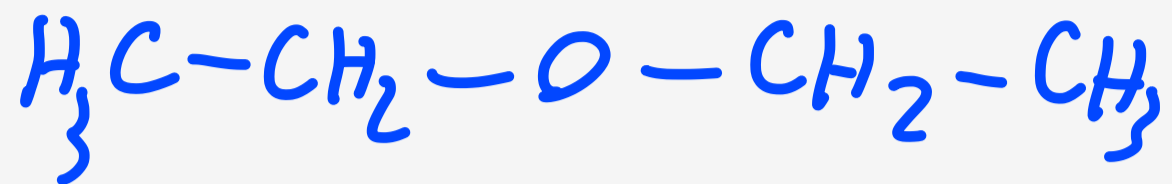
4) CARBONILI
OSSIDAZIONE $\text{R}'\text{C}=\text{O}$

ETERI



R-O-
ETERE

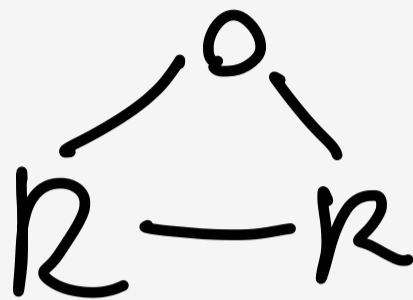
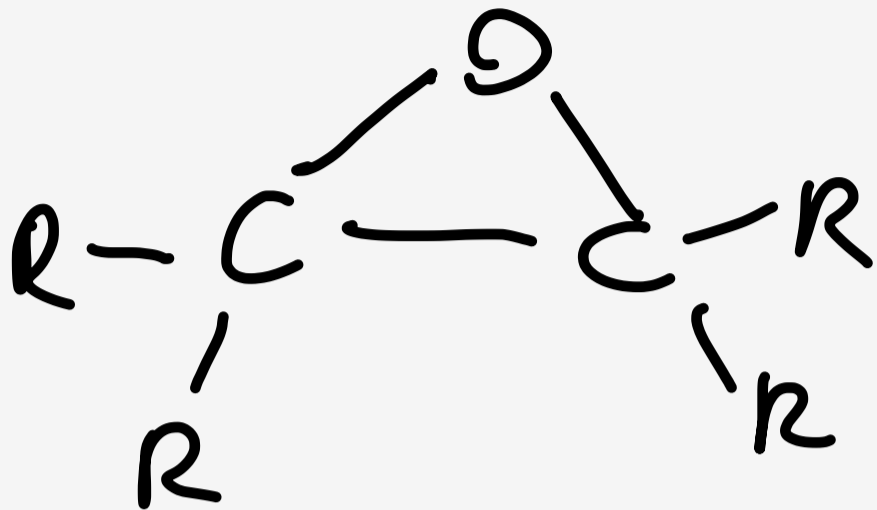
DIETHYL ETHERE



METHYL-ETHYL ETHERE

E POSSIBILI

ETERE CICLICO

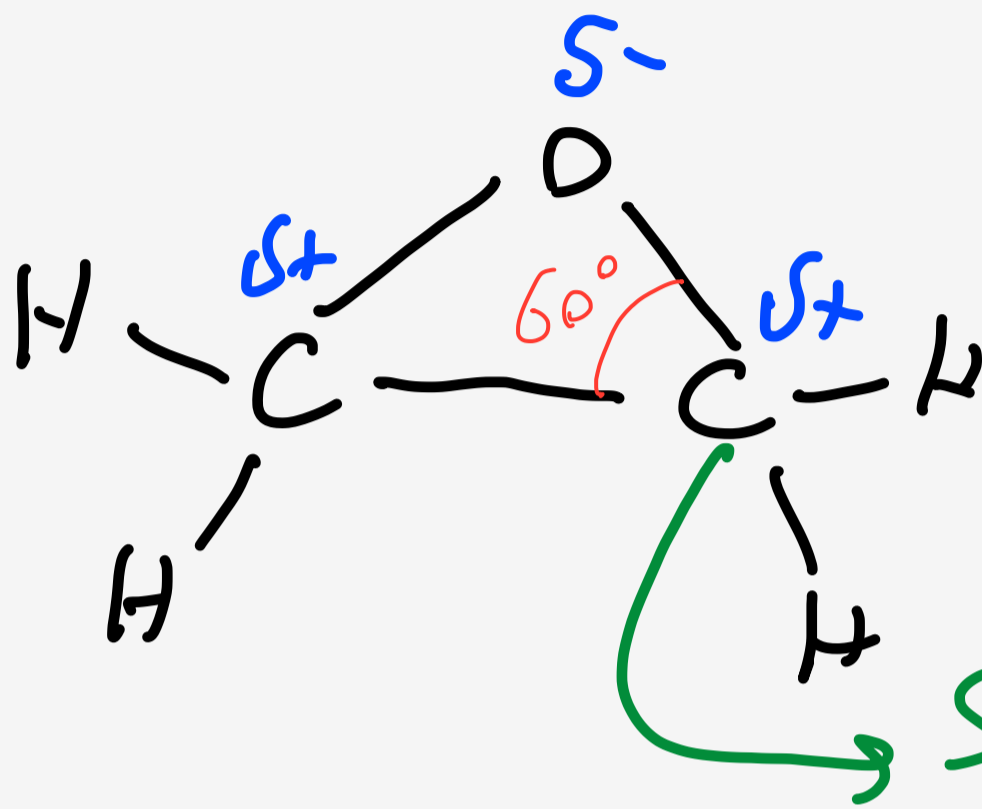


MOLTO REATTIVI

PERCHÉ ?

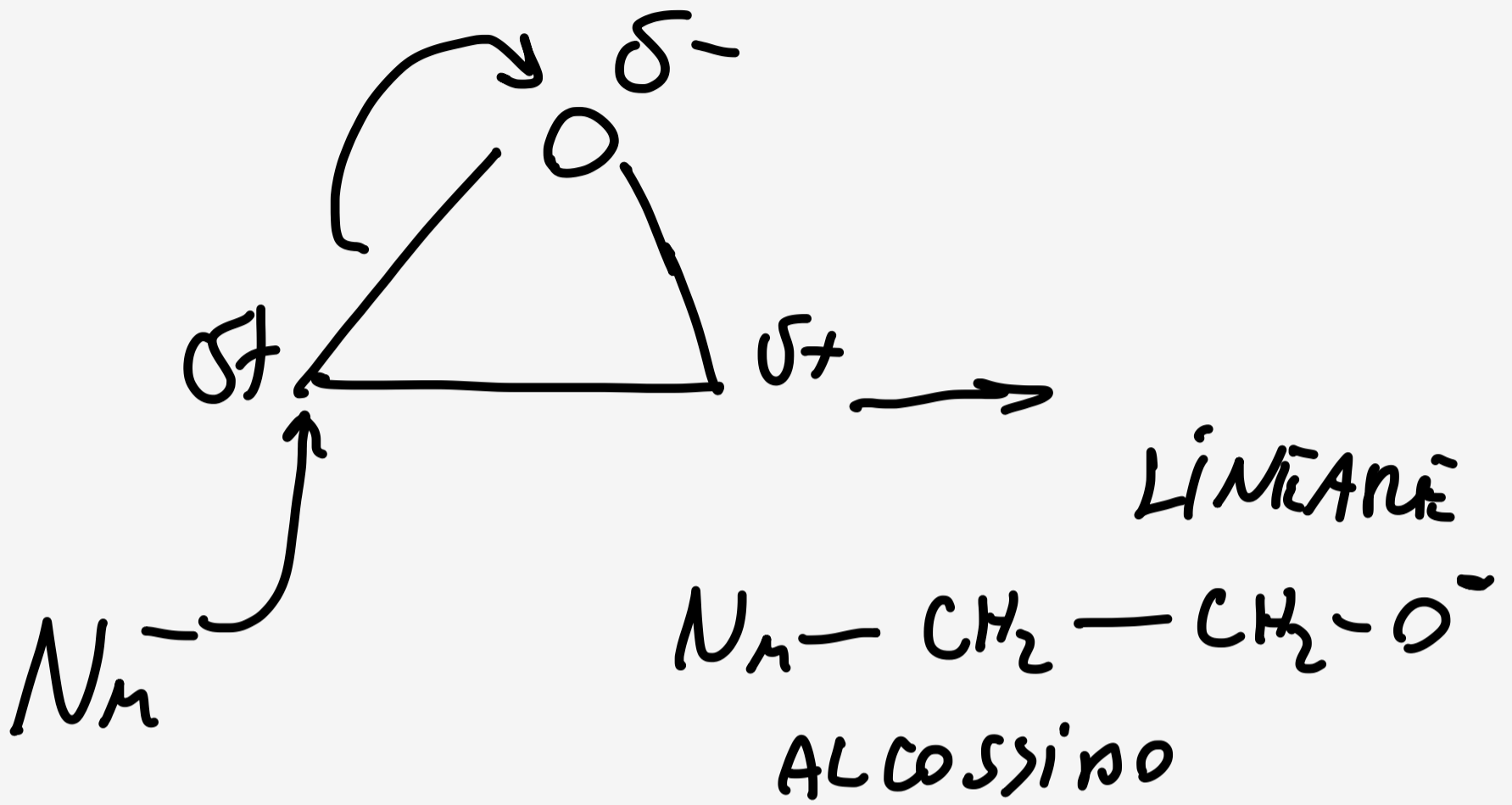
2 MOTIVAZIONI:

TENSIONE DI ANELLO

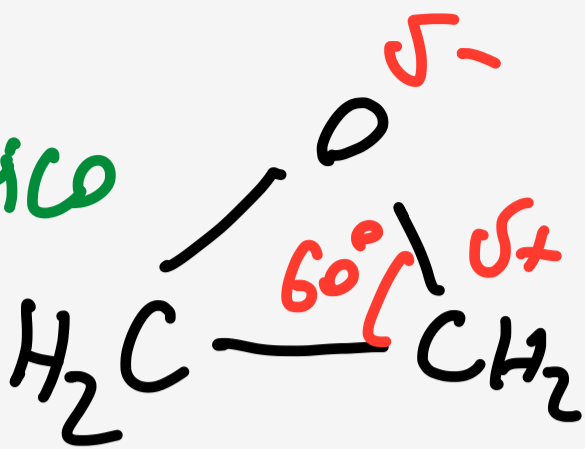


$109,5^\circ$

SP₃ 4 LEGAMI

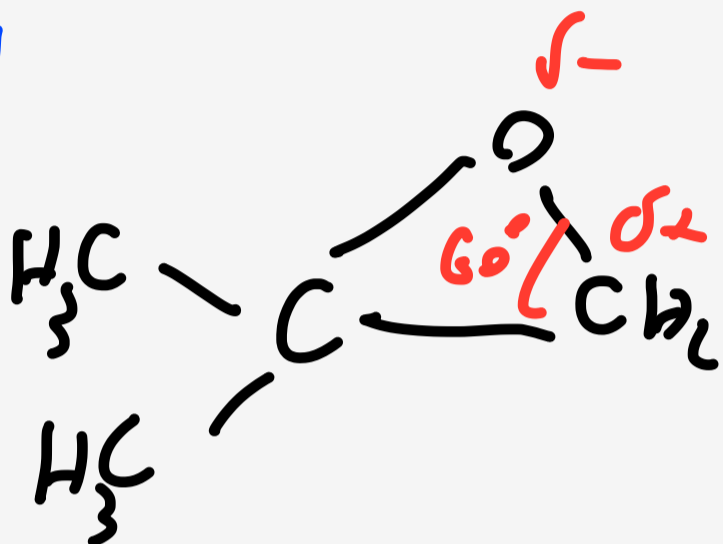


SIMMETRICO

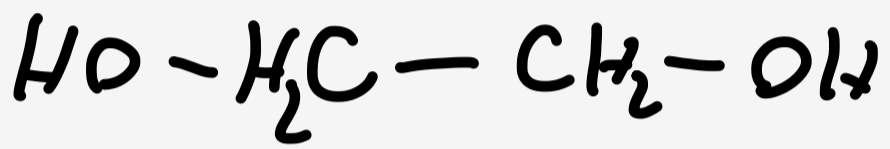
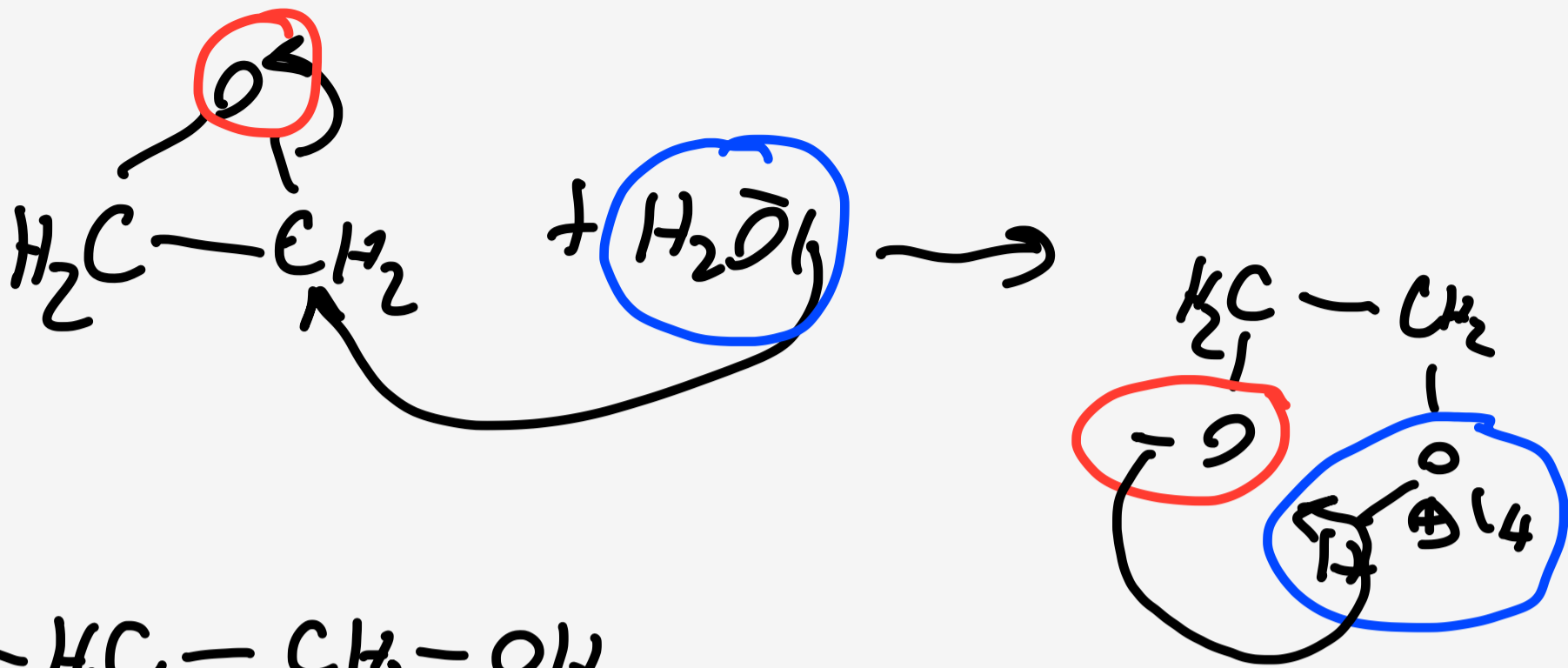


OSSIDO DI
ETILENE

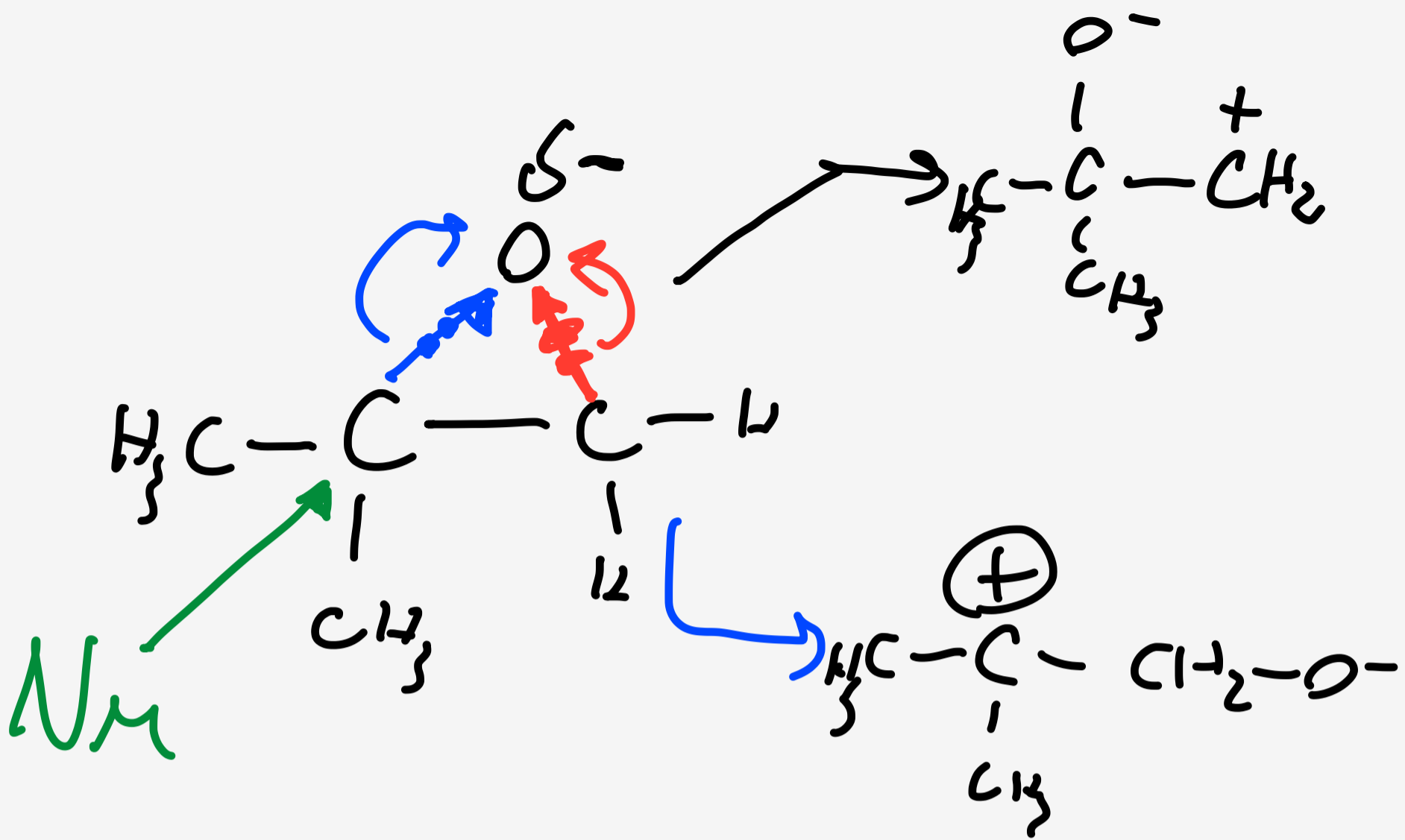
H_2O

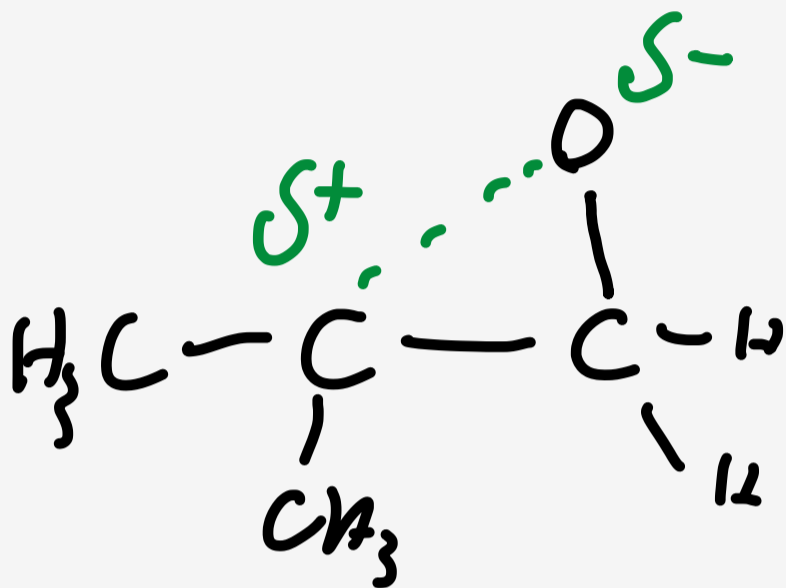
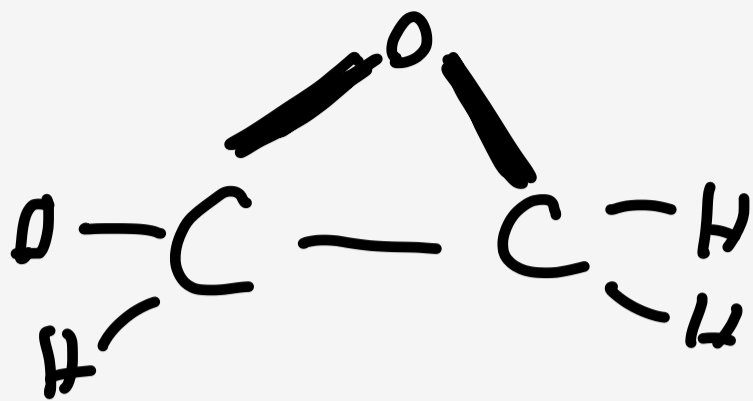


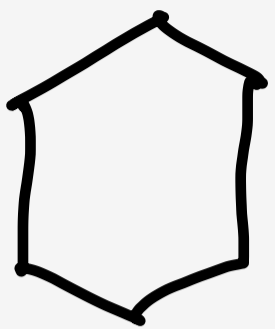
ASIMMETRICO



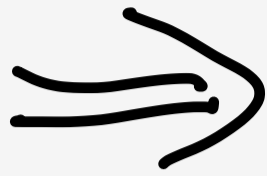
DIOLO



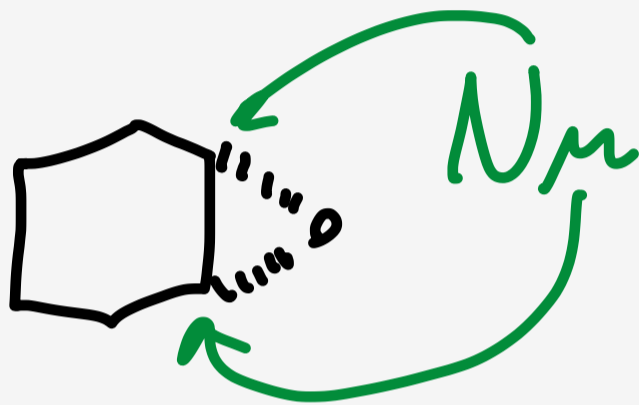
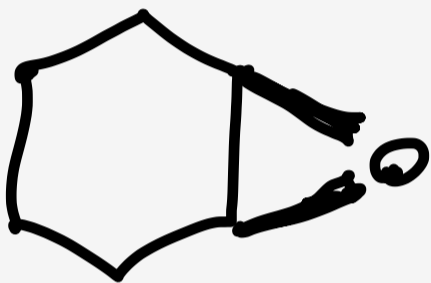




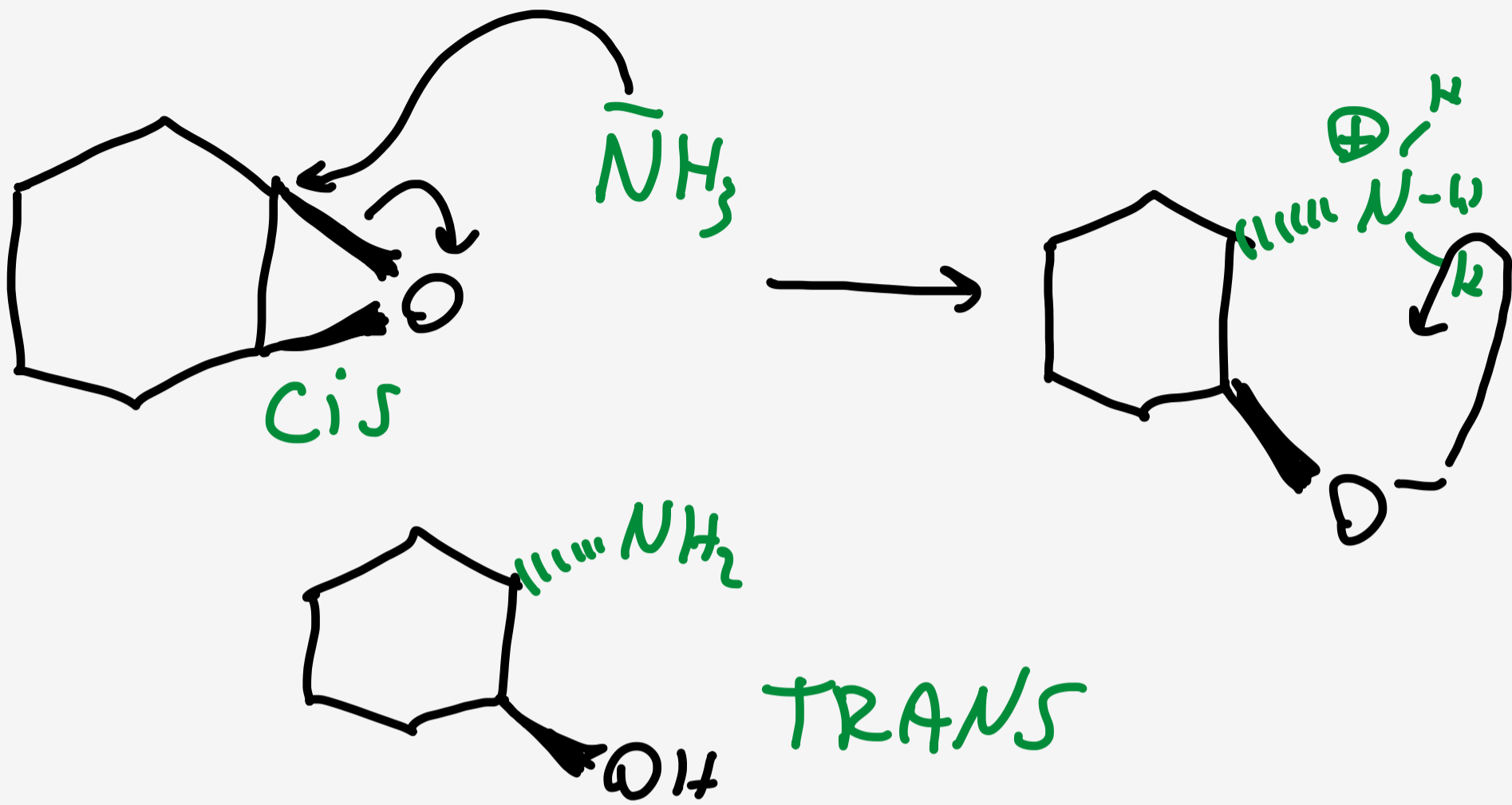
CICLOESANO



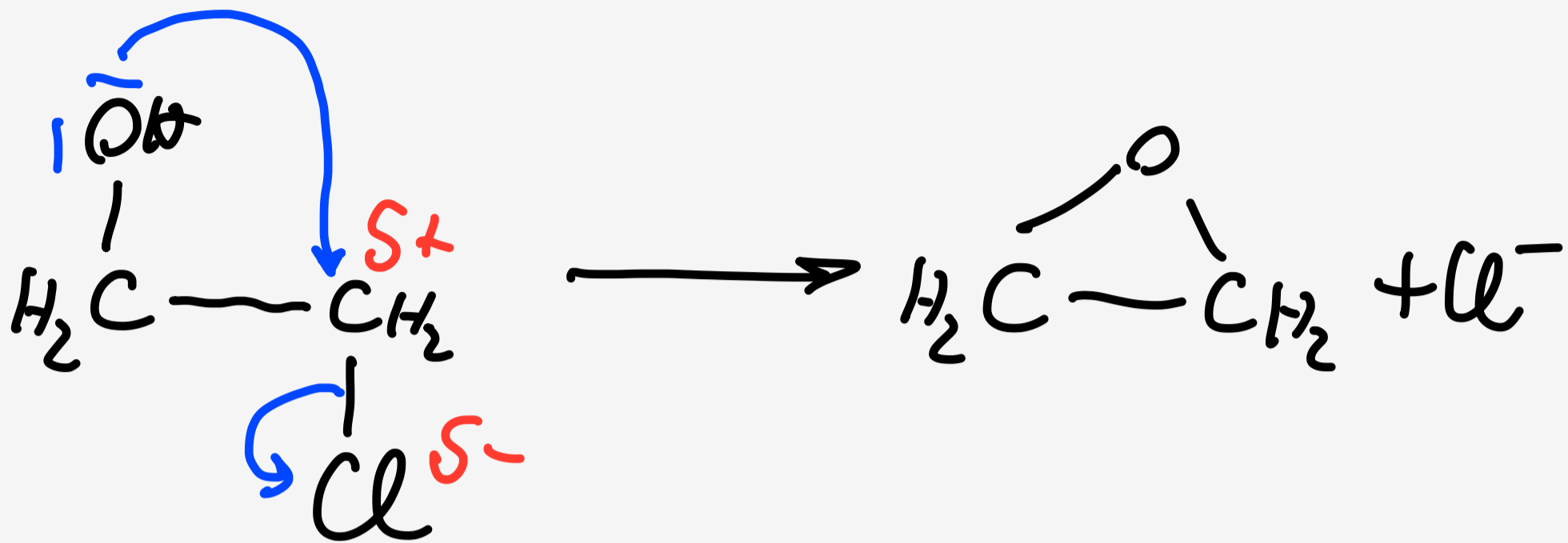
EPOSSINI SUI
CICLI SONO
SEMPRE CIS.



DA
PARTE
OPPOSTA
AL CICLO
EP Ossinico



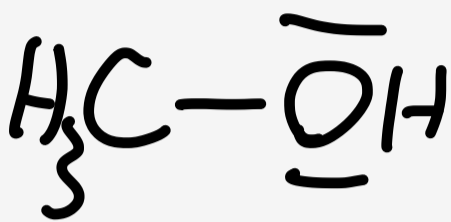
PREPARAZIONE EPOSSIDI



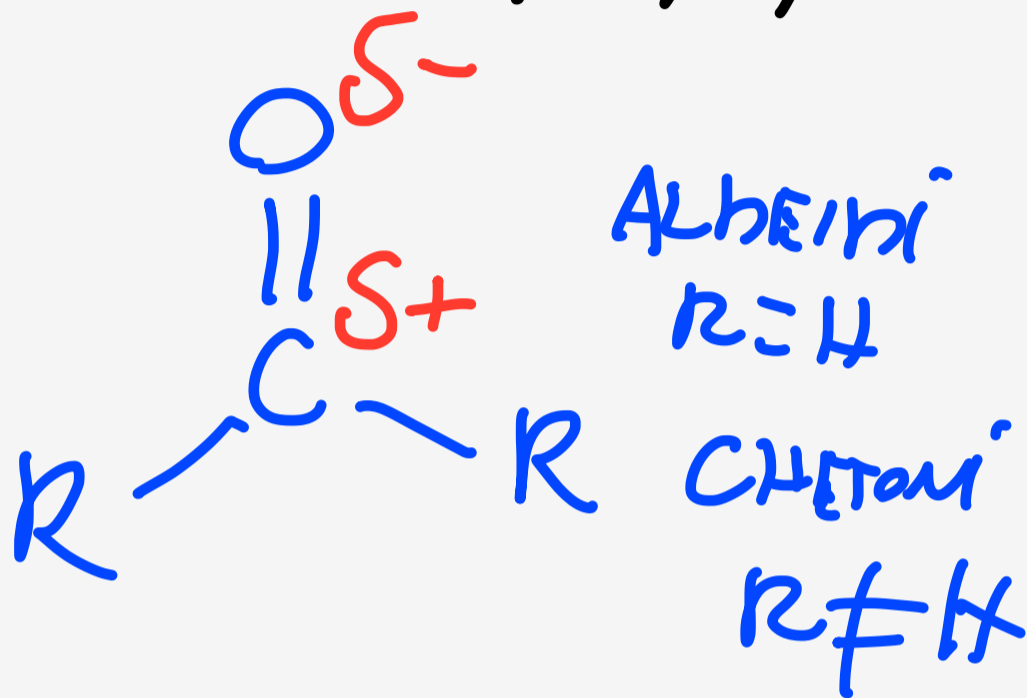
CLORIDRINE

ACETALI / CHETALI

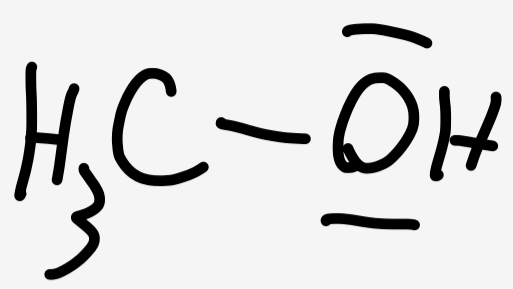
ALCOLI ED ALDEIDI CATALISI ACIDA



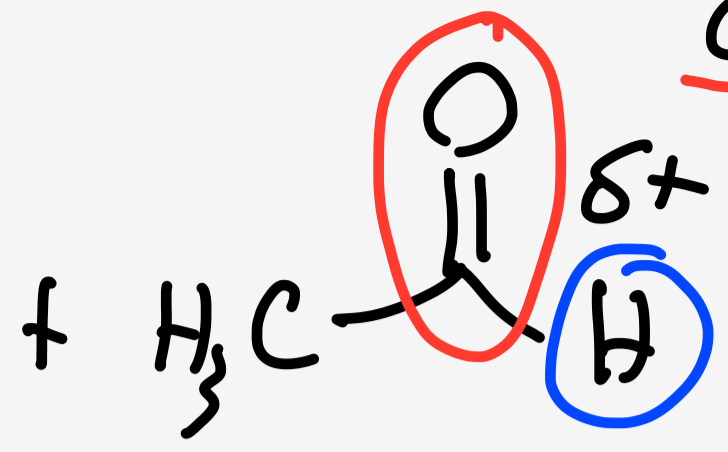
NUCLEOFILO



CARBONILE

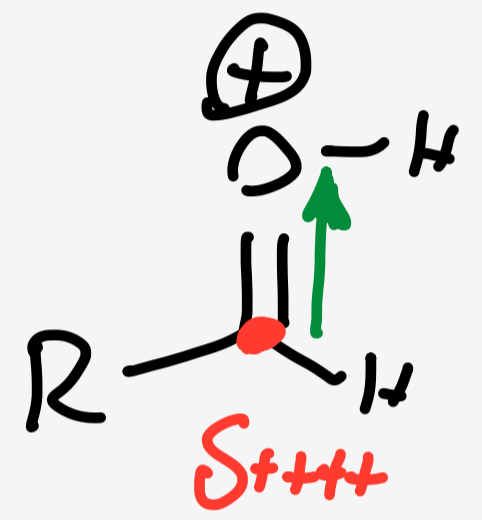
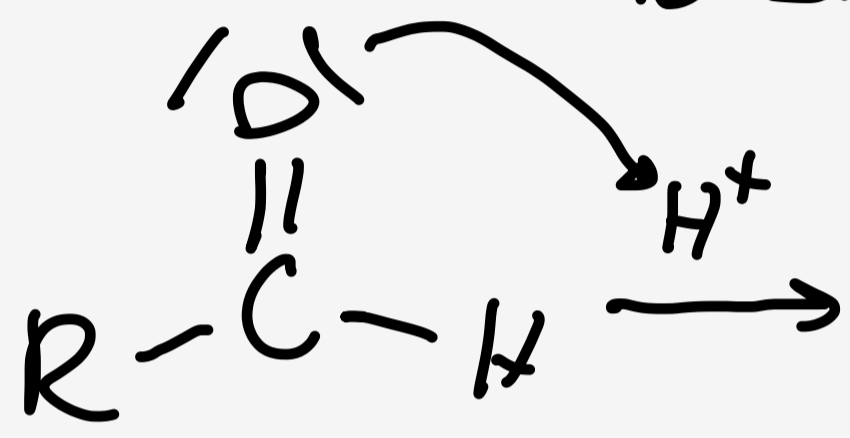


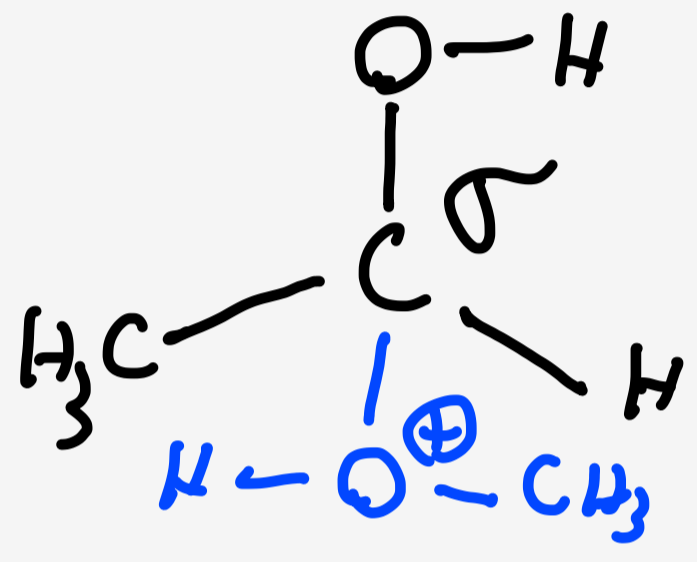
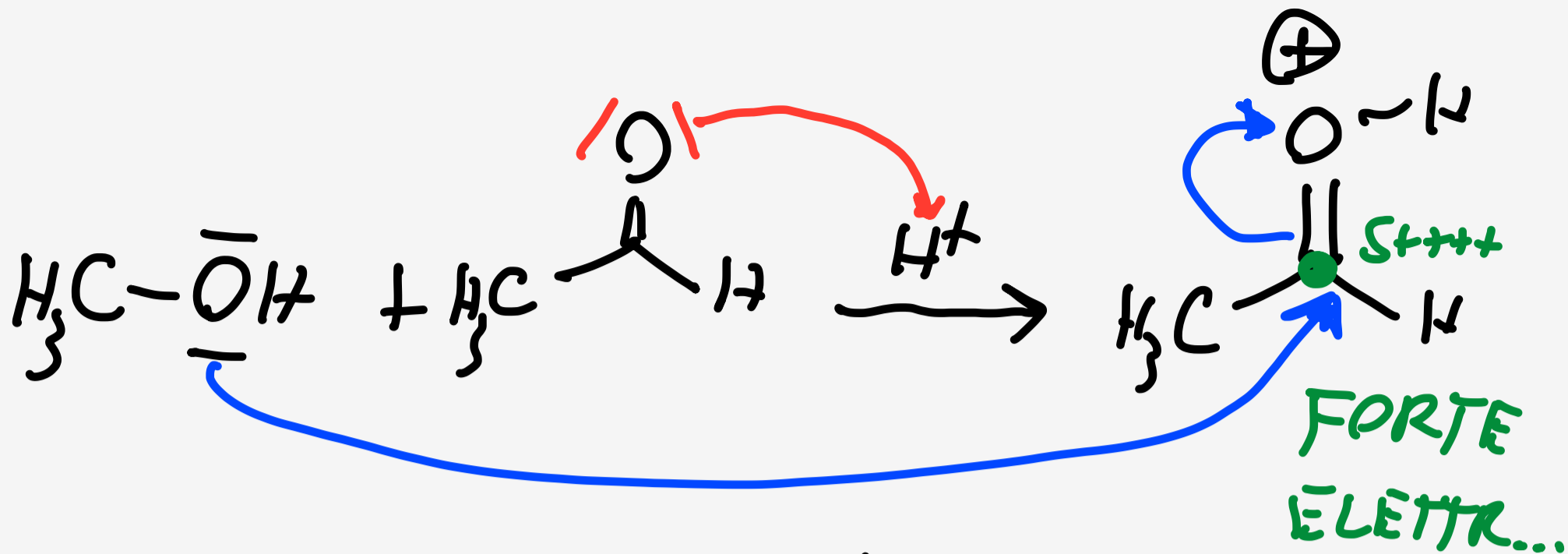
NUCLEOFILO
DEBOLÈ



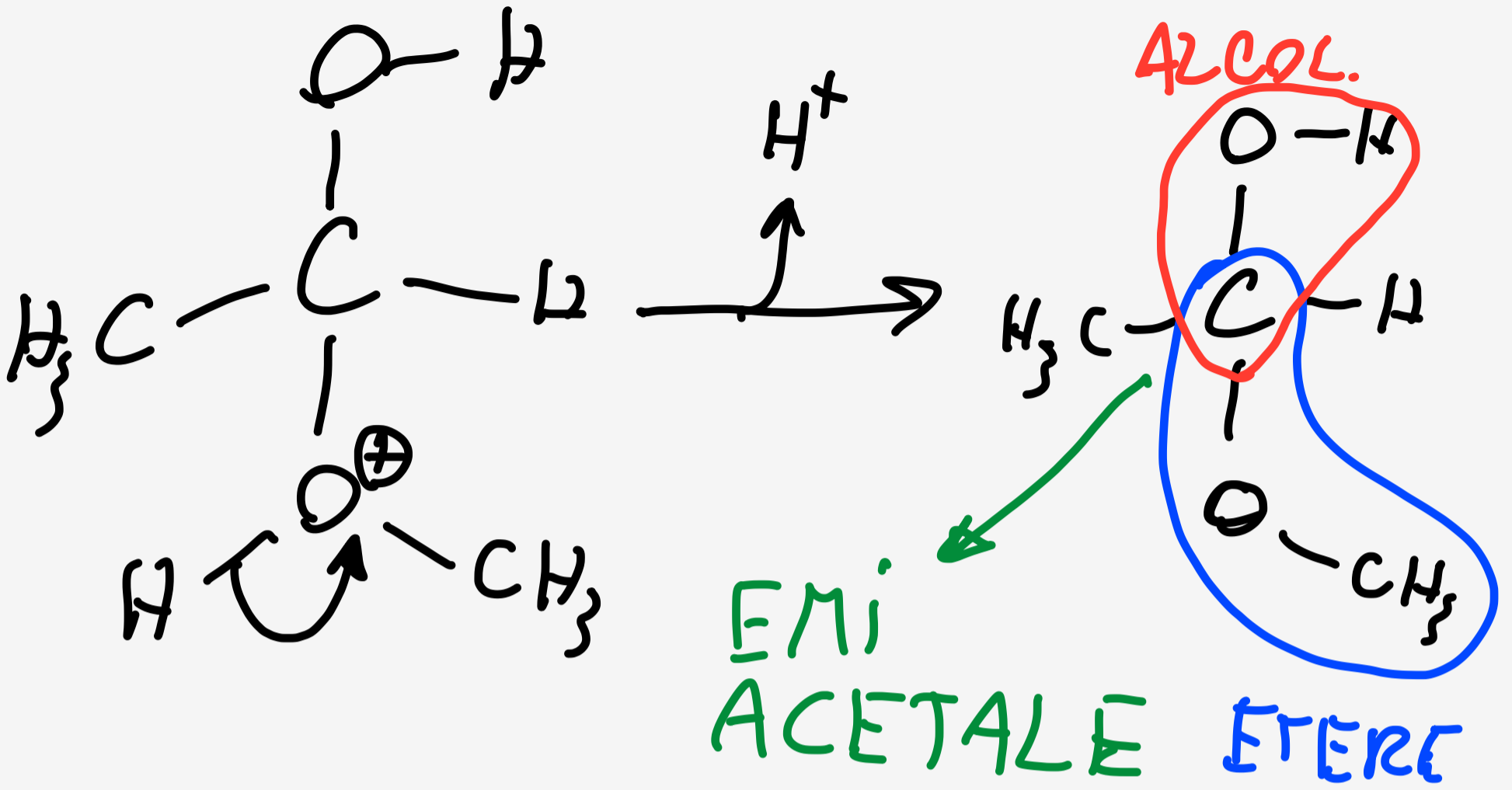
$R = \text{H}$

ELETTROFILO
DEBOLÈ

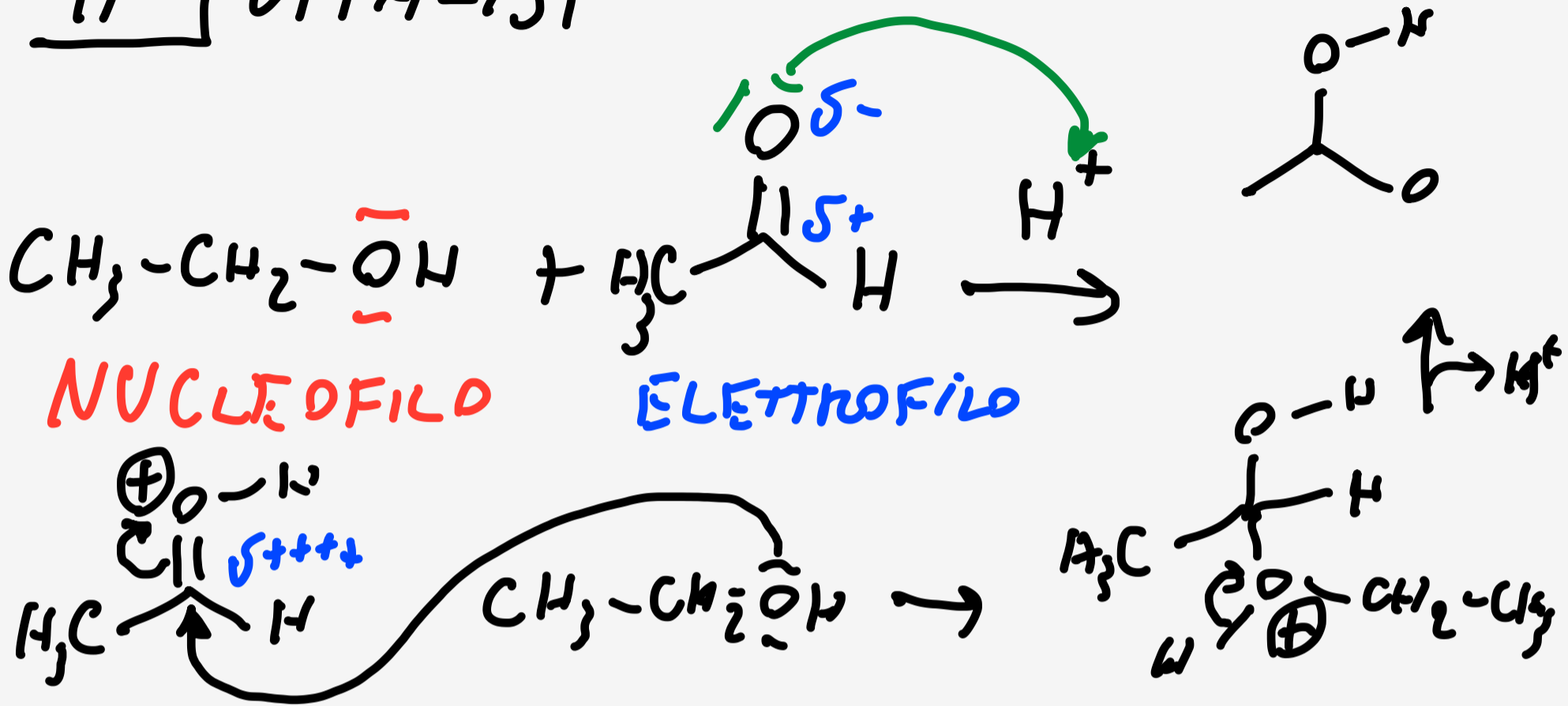


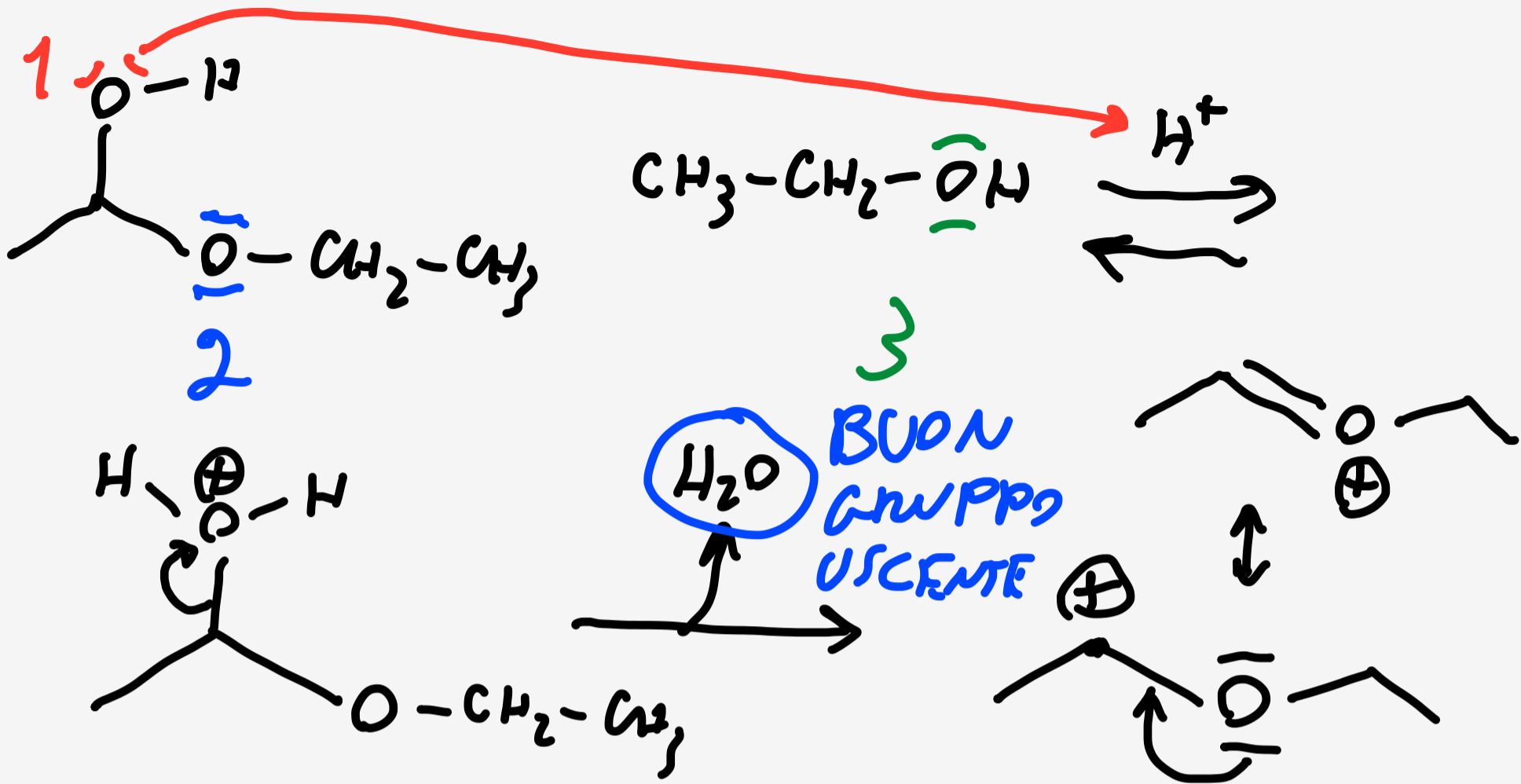


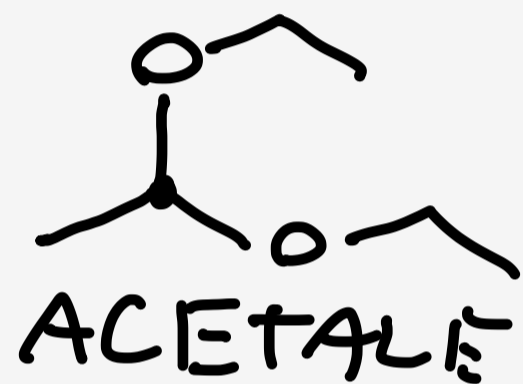
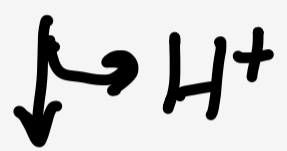
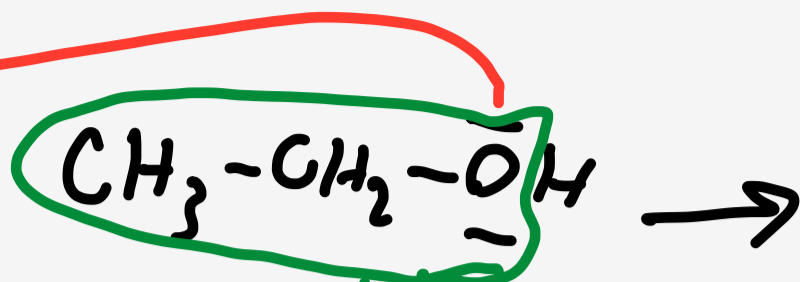
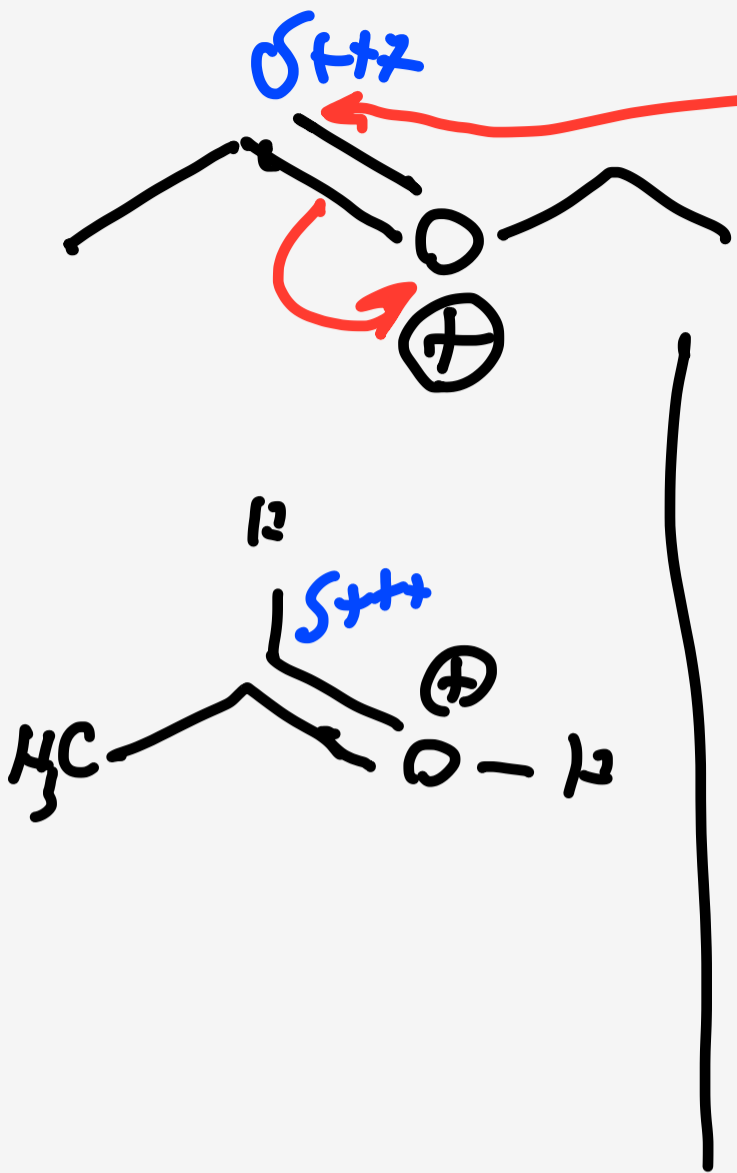
O^-

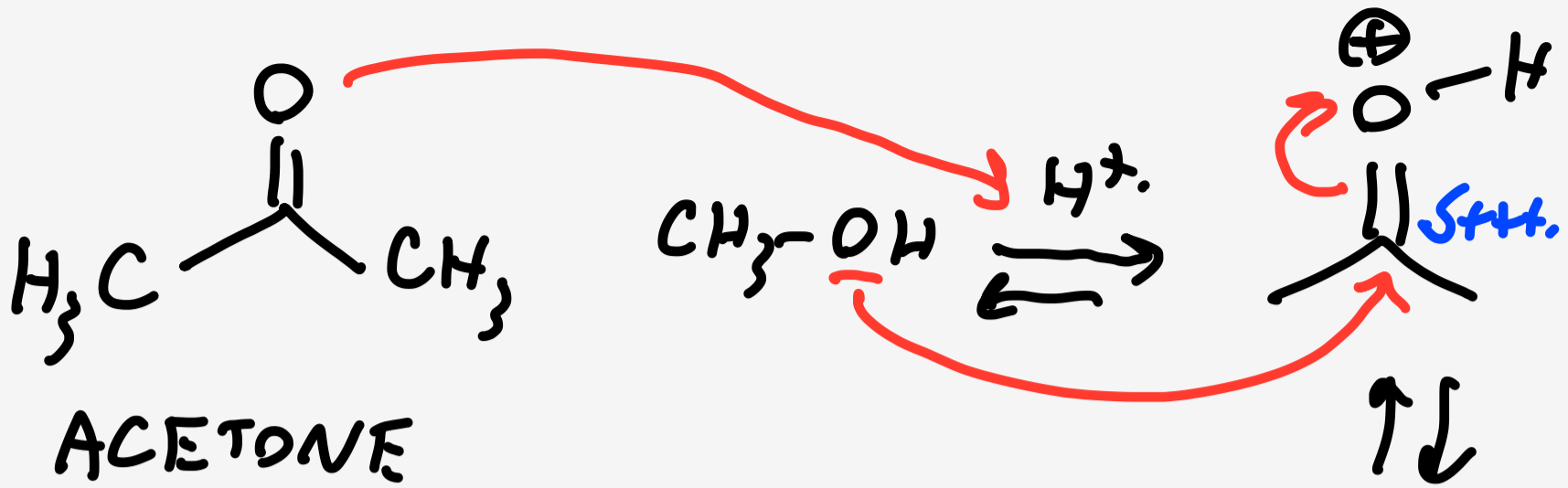


ACETALI = ALCOL + ALDEIDE
H⁺ CATALISI

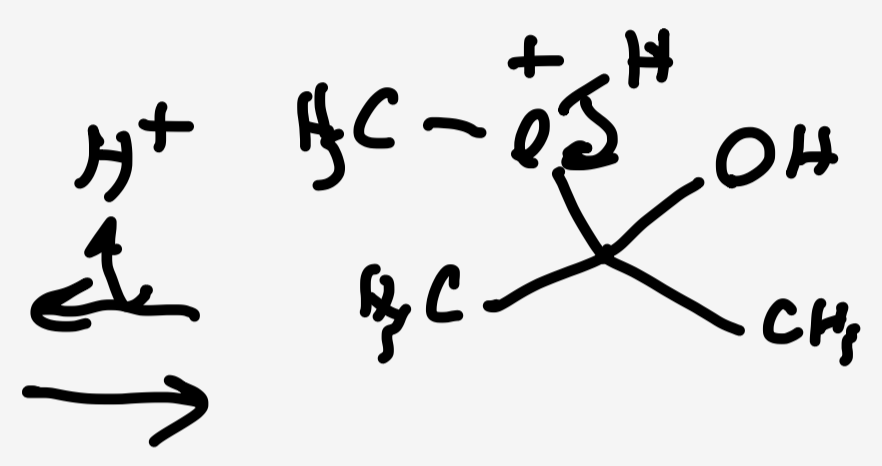
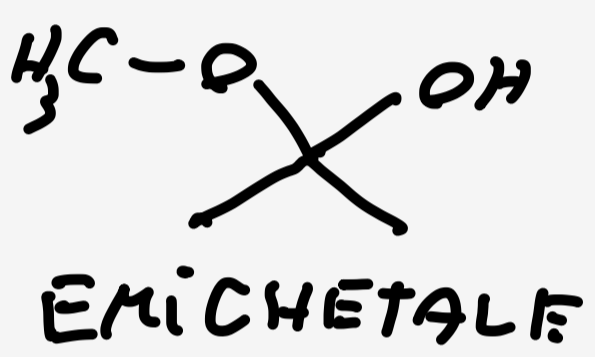


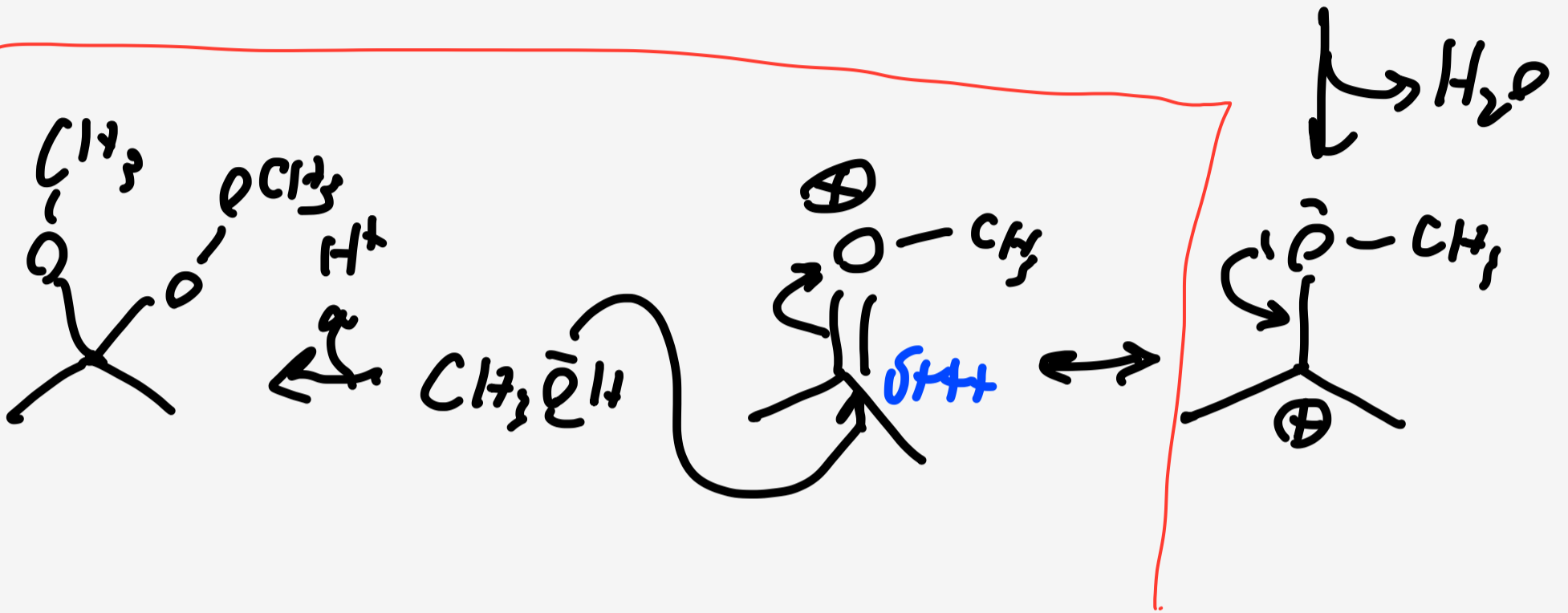
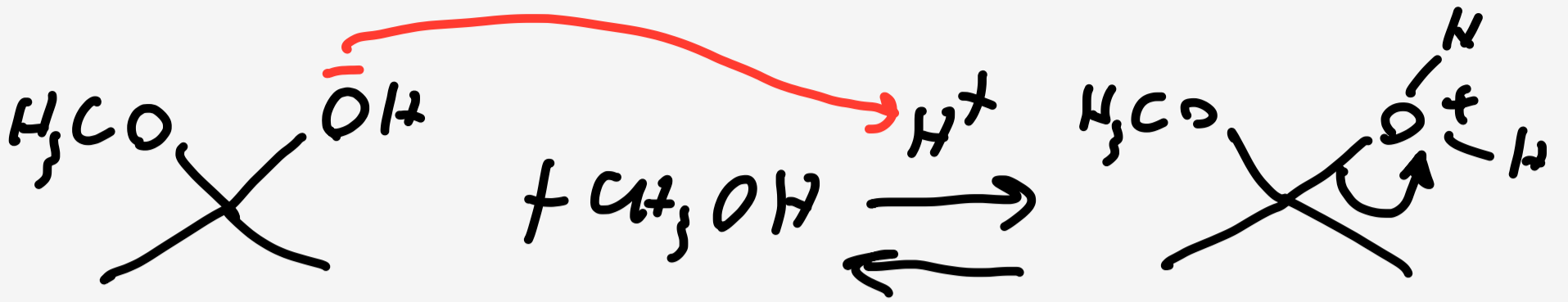


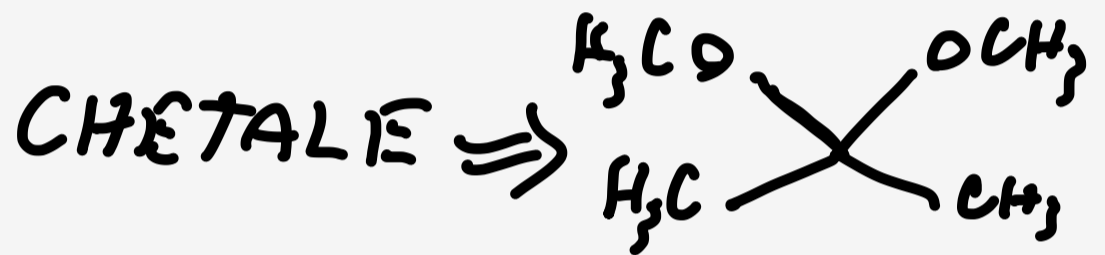
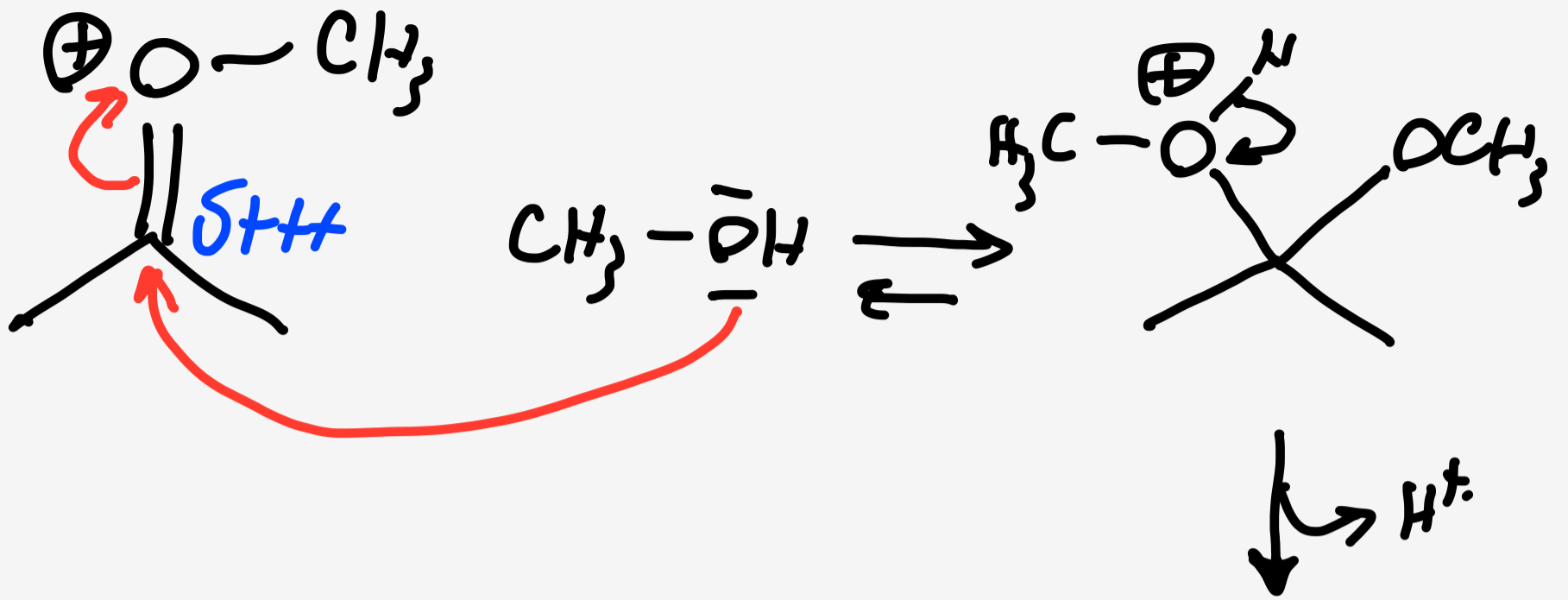




PROPANONE







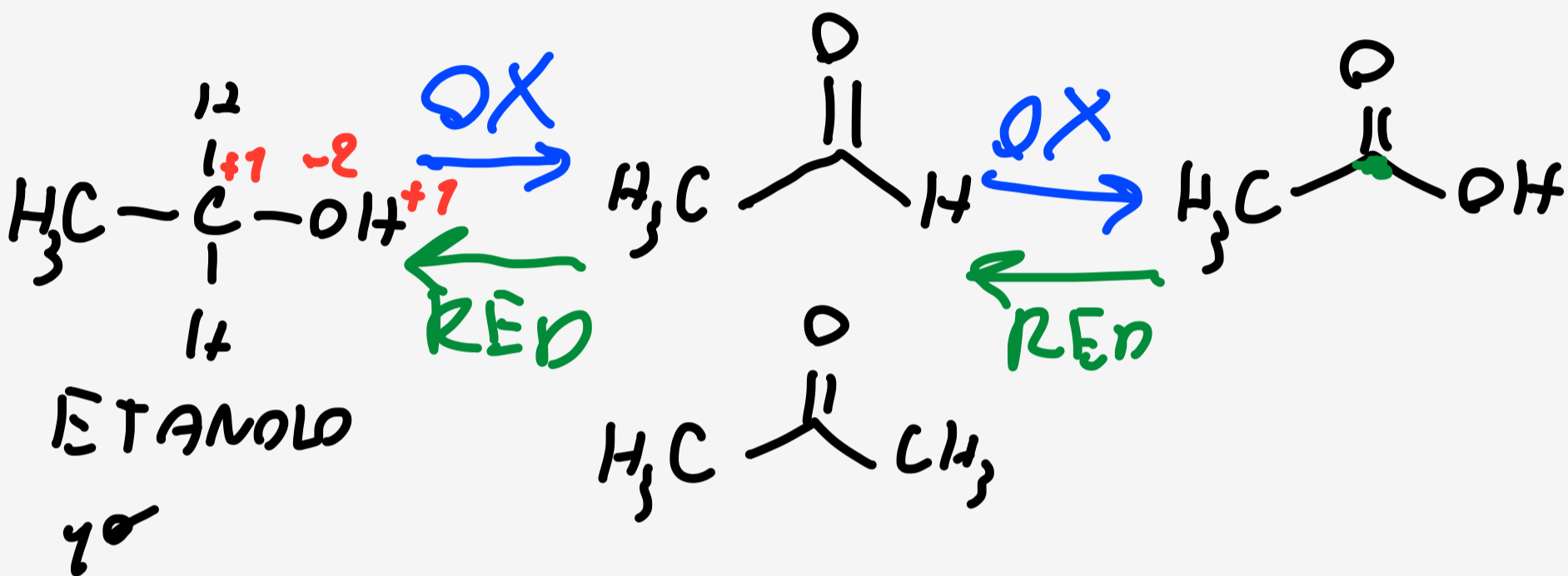
OSSIDAZIONE

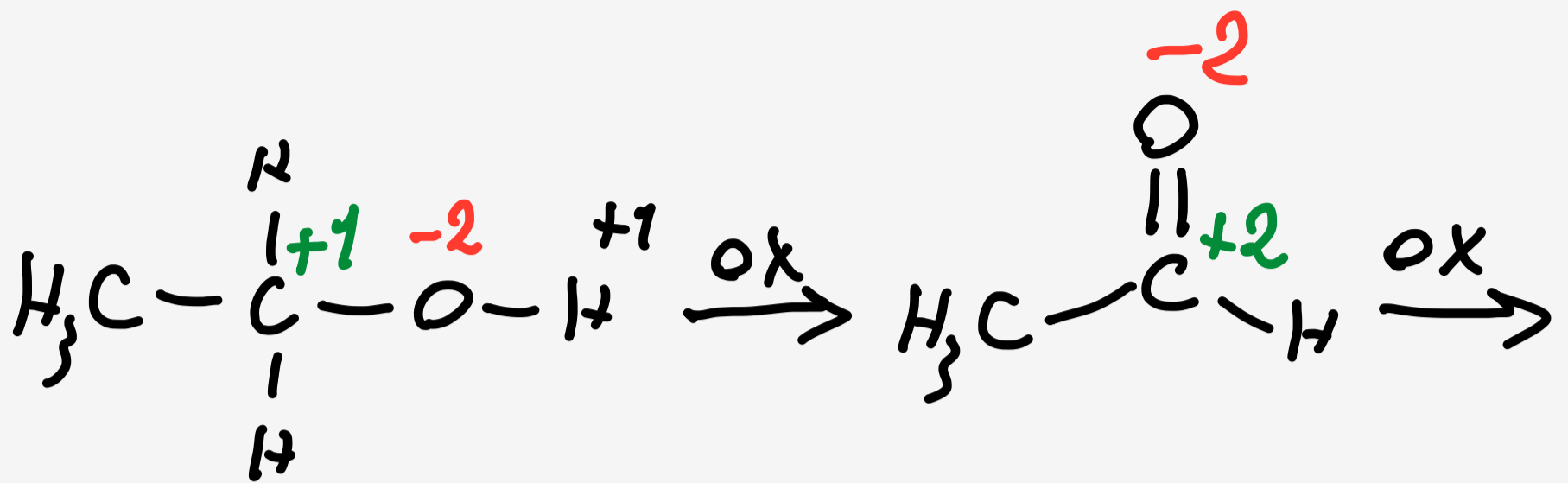
AGGIUNGERE 1 ATOMO
di OSSIGENO
O TOGLIERE 1 MOLECOLA
di IDROGENO (H_2)

RIDUZIONE

TOGLIERE 1 ATOMO
di OSSIGENO (O)
AGGIUNGERE 1 MOLECOLA
di IDROGENO (H_2)

ALCOLI \longrightarrow ALDEIDI \longrightarrow ACIDI
 CHETONI CARBOSSILICI





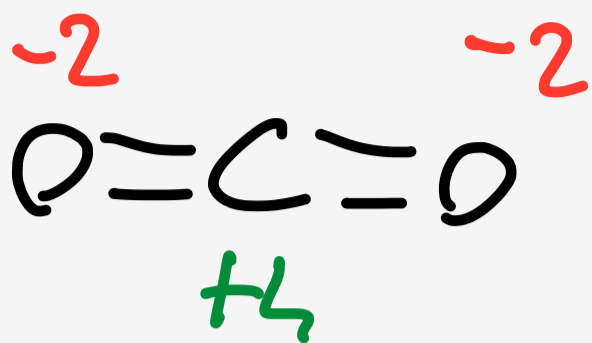
STATO DI OSSIDAZIONE

ALCOL = +1

ALDEIDI = +2

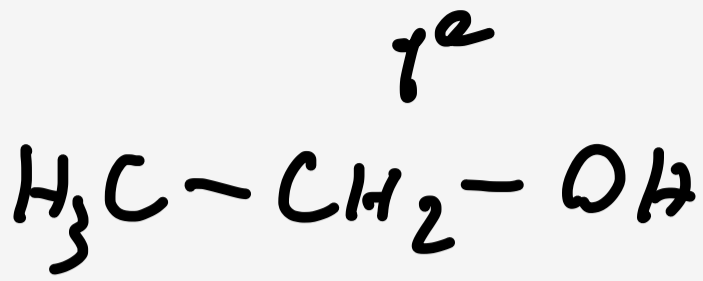


ACIDI = +3

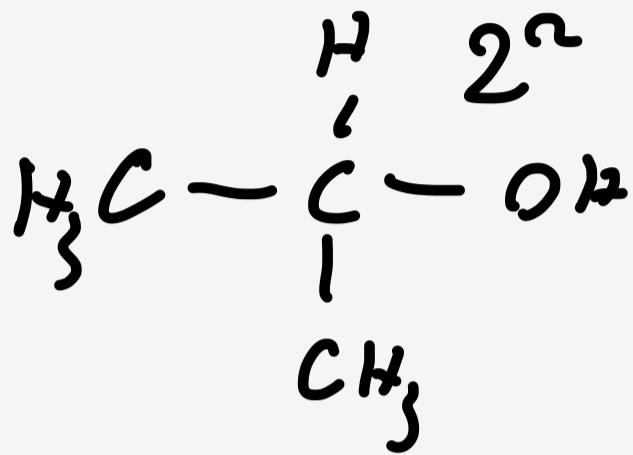


MASSIMO STATO DI
OSSIDAZIONE DEL
CARBONIO

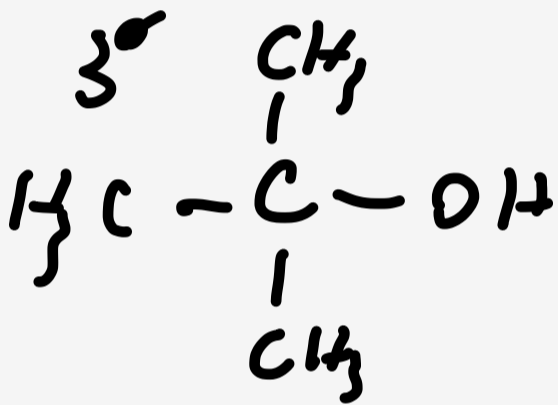
$KMnO_4 / Cr_2O_6$
Ayr 20



→ ALDEIDE

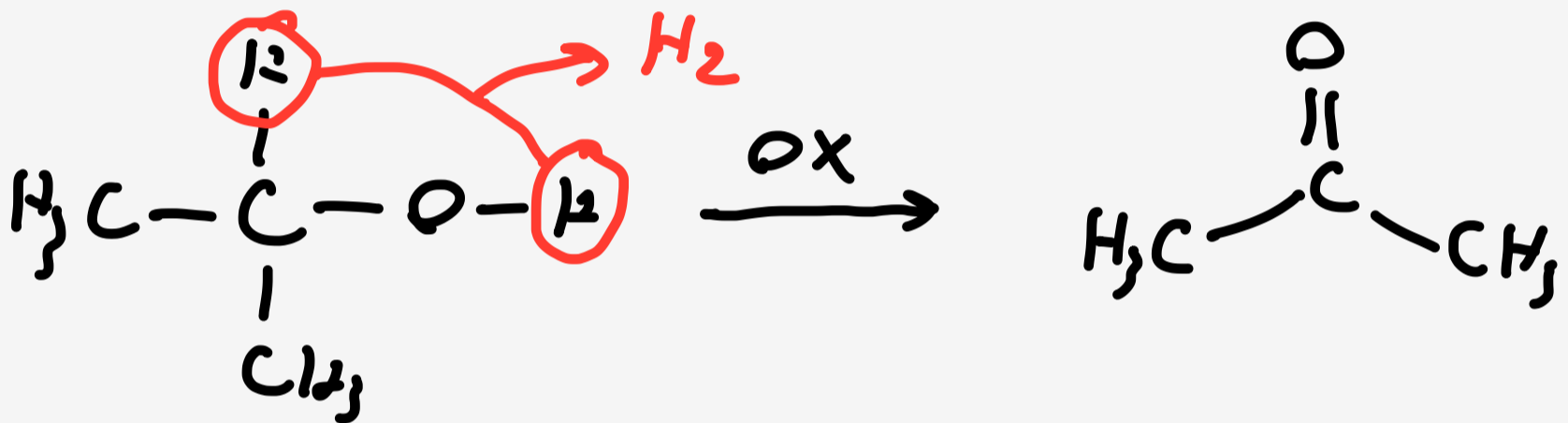
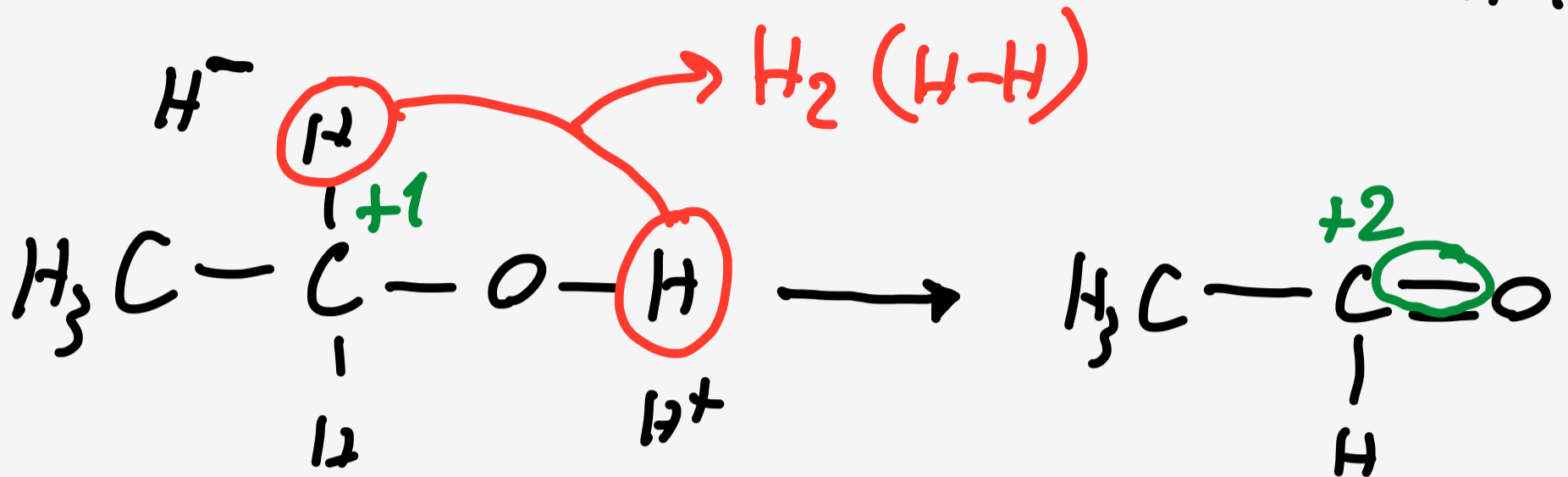
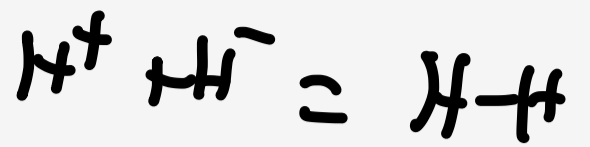


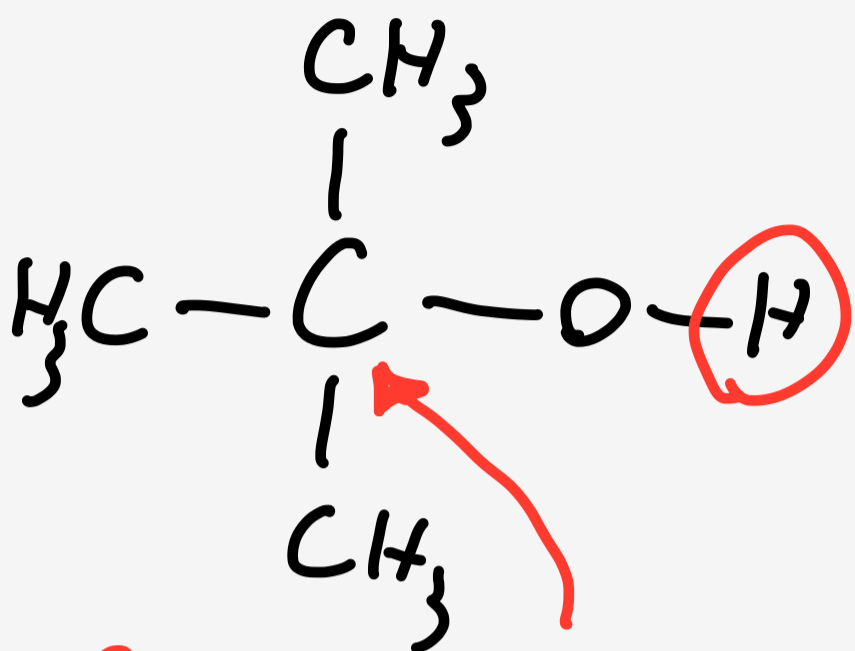
→ KETONE



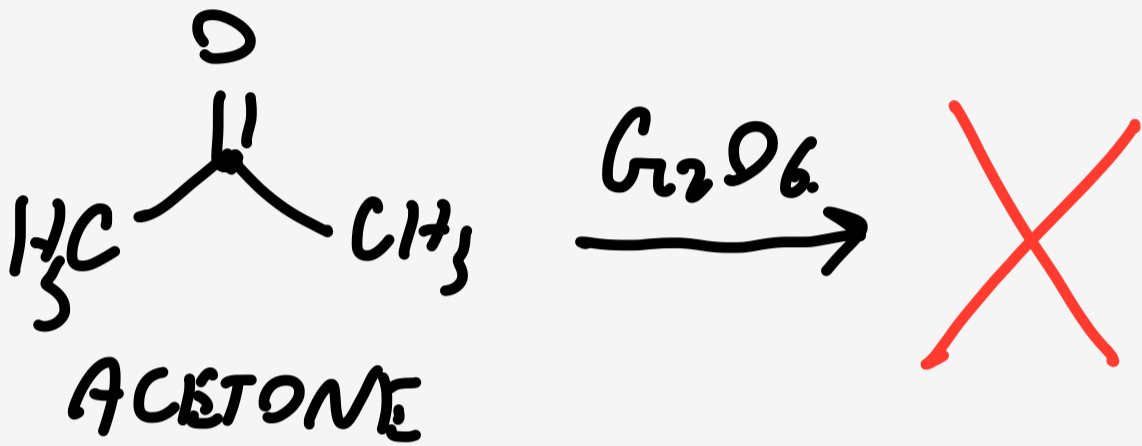
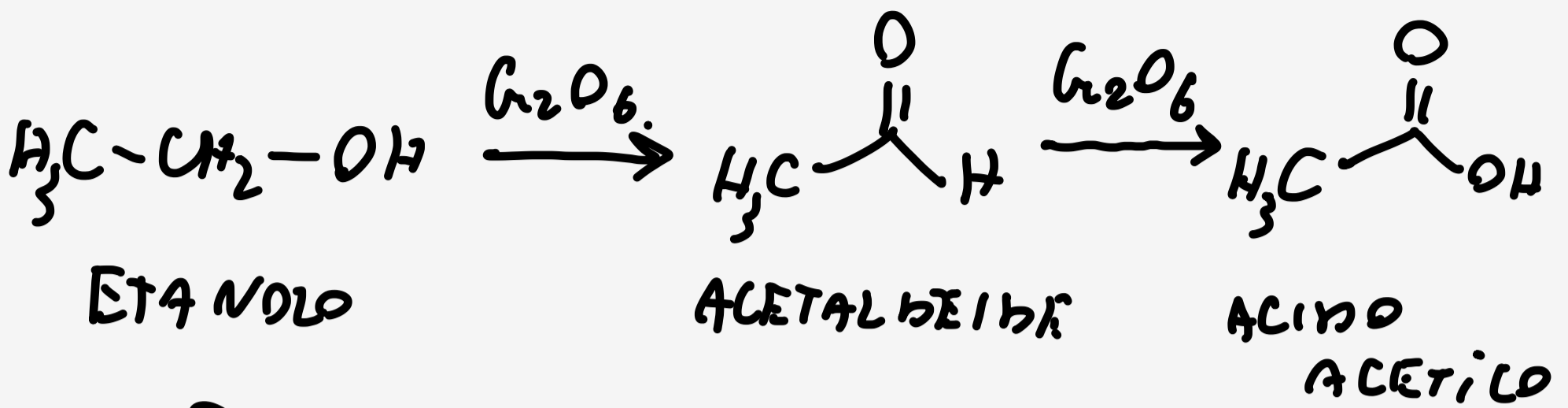
→ NON È POSSIBILE

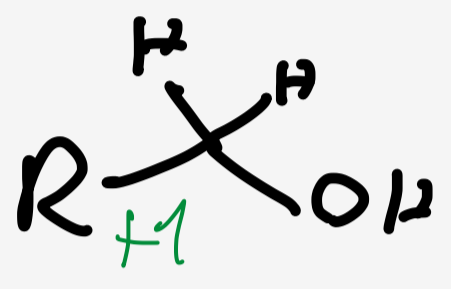
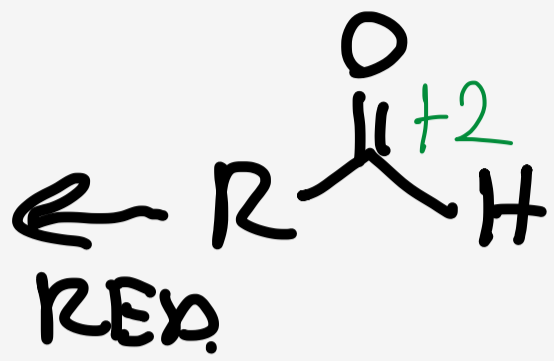
ALCO2 Primario.



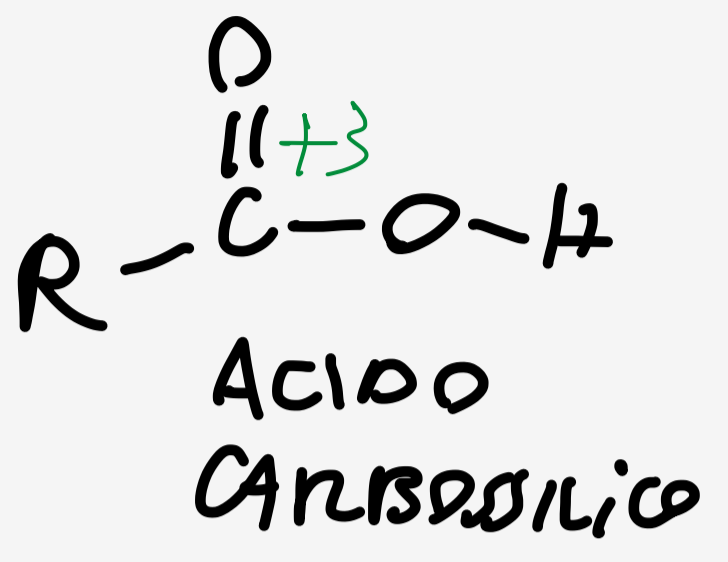


3° NON CI SONO
I BRONCHI

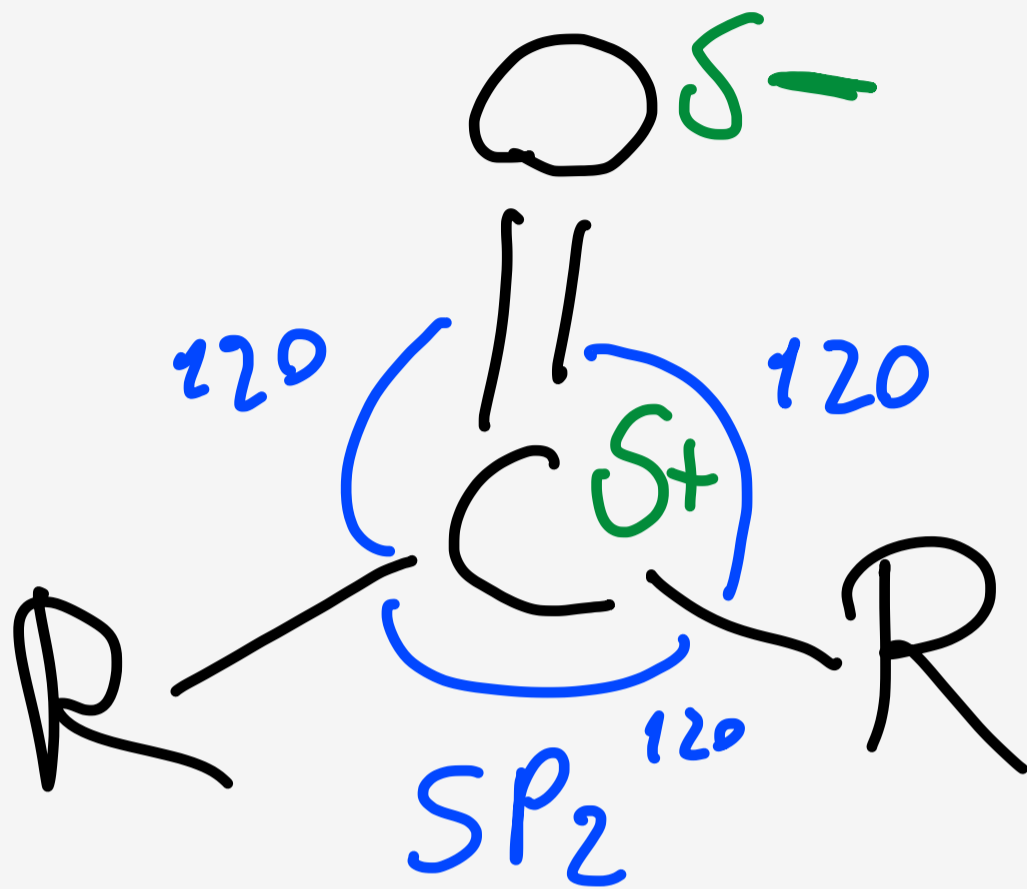




RED
←
 LiAlH_4
 NaBH_4
 H^-



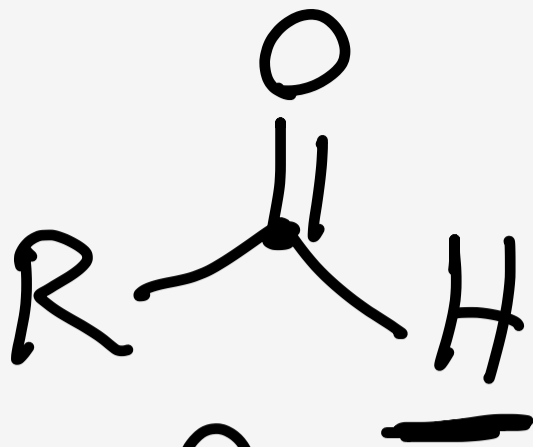
COMPONENTI CARBONILICI



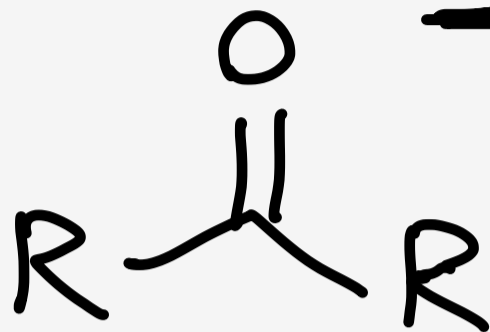
ELETTROFILI

DEBOLI

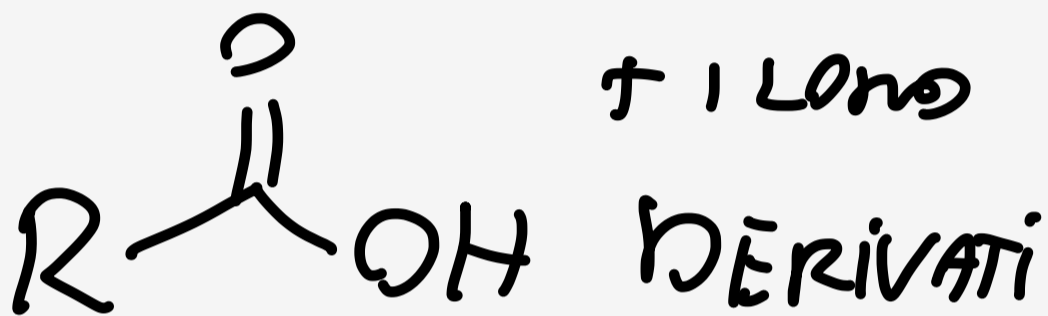
1) ALDEIDI



2) CHETONI

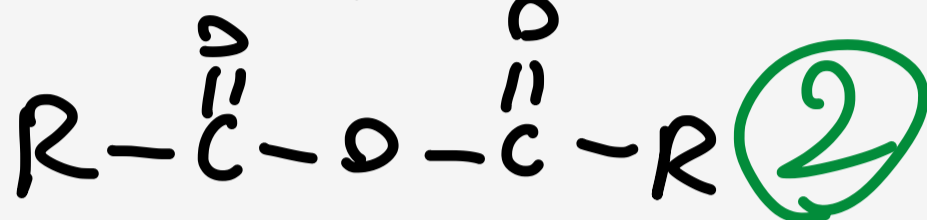


3) ACIDI
CARBOSSILICI





ALOGENURI
ACILICI



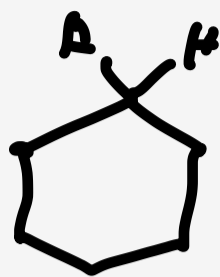
ANIDRIDI



AROMATICI

BENZENE

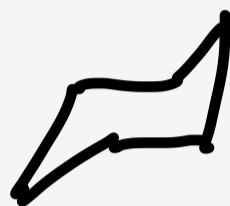
CICLICO



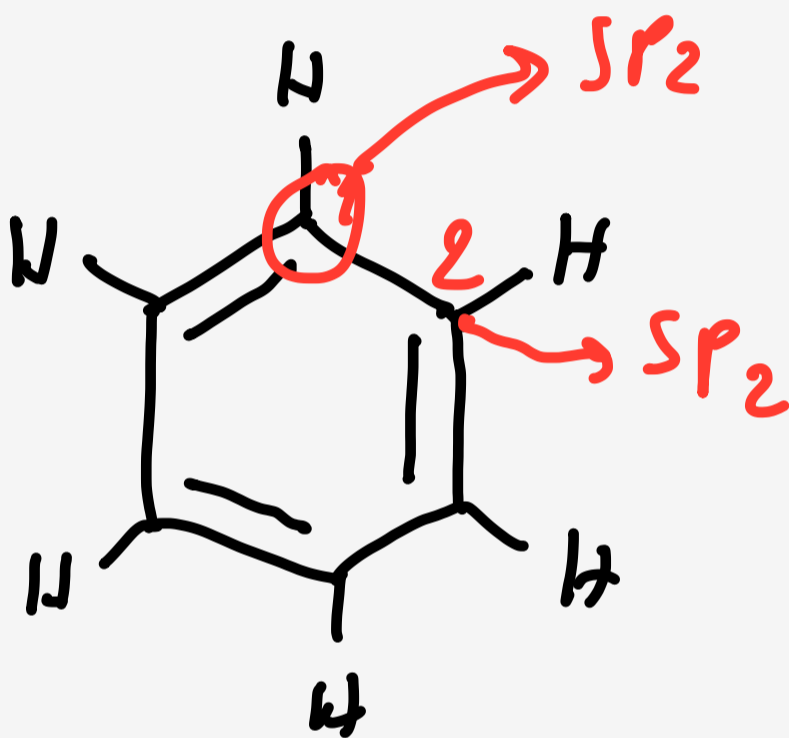
C_6H_{12}



C_6H_6

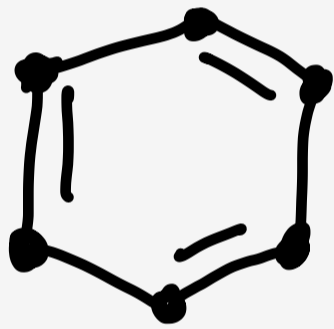


SEMI

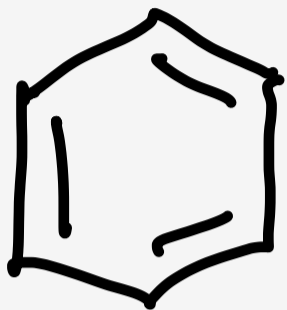


1) CICLICO

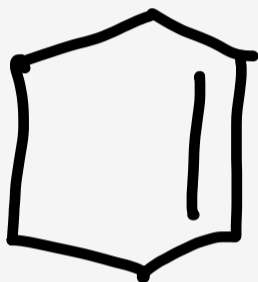
2) TUTTI GLI ATOMI DEVONO ESSERE
IBRIDATI sp_2 (PLANARE)



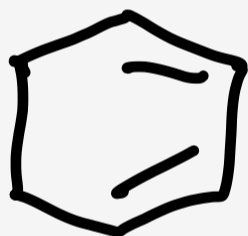
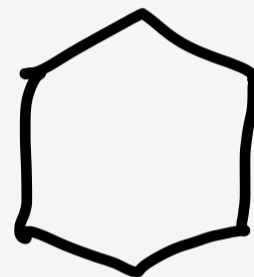
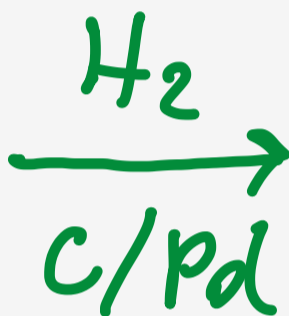
DONA ELEVATA
STABILITÀ CHIMICA



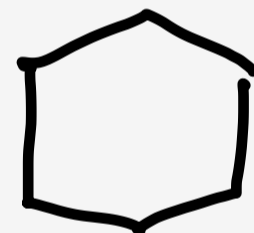
CICLO ESA TRIENE

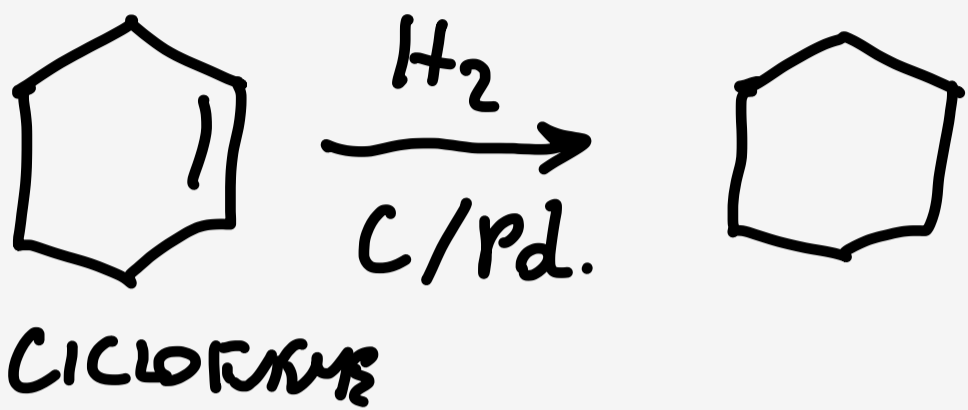


CICLO ESENE

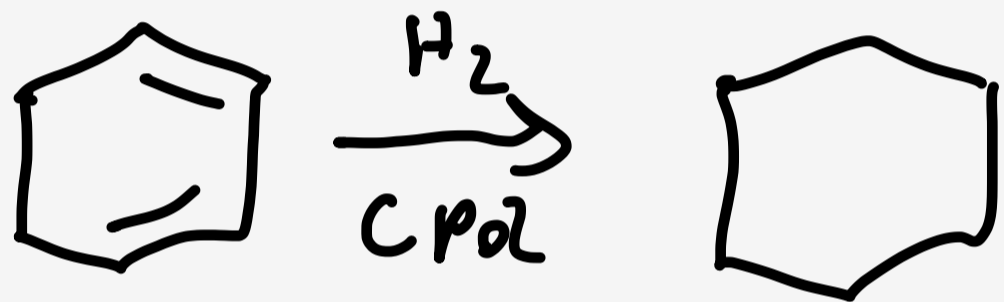


CICLO ESA DIENE

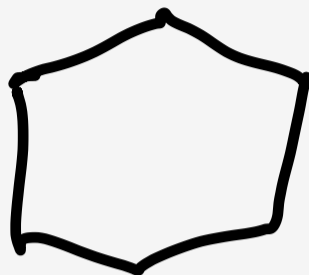
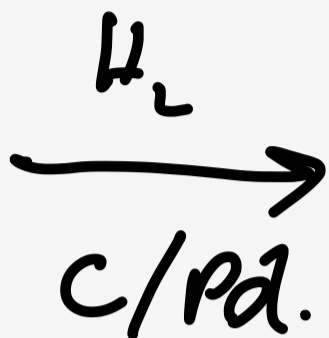
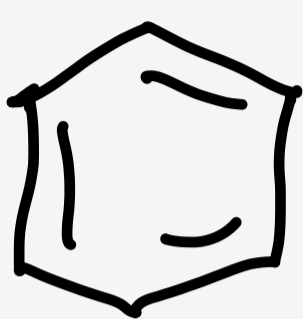




50 Kcal/Mole

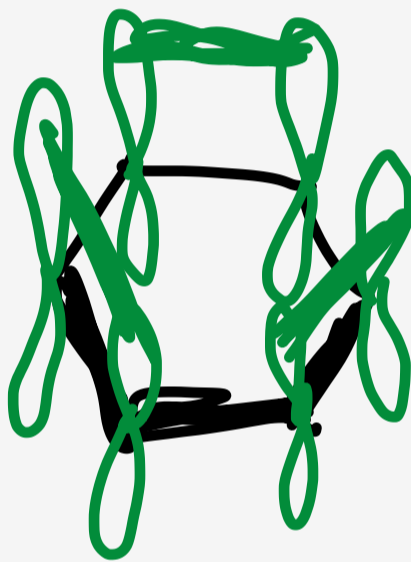
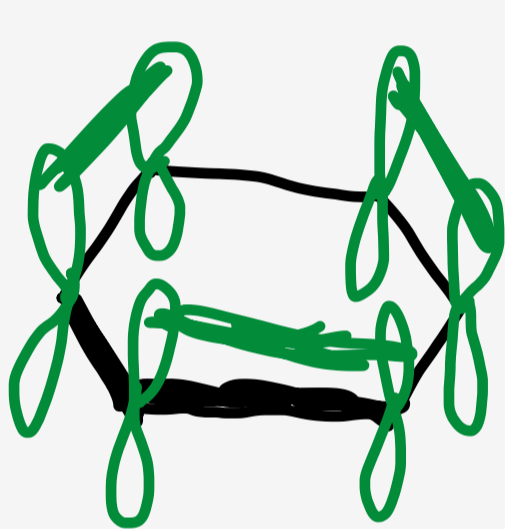


100 Kcal/Mole

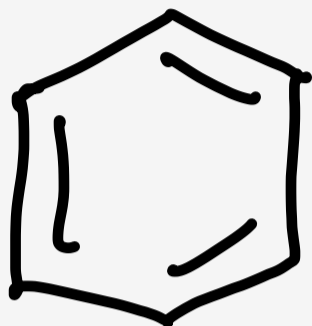


150 Kd/M_n

600



RESONA
N24



δ più lungo π

$$\delta = 1,5 \text{ \AA}$$

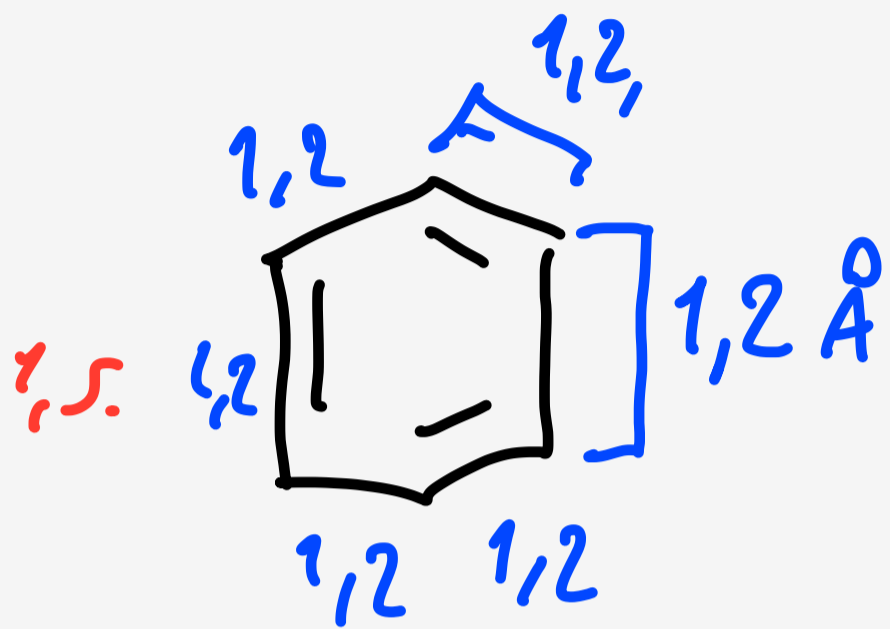
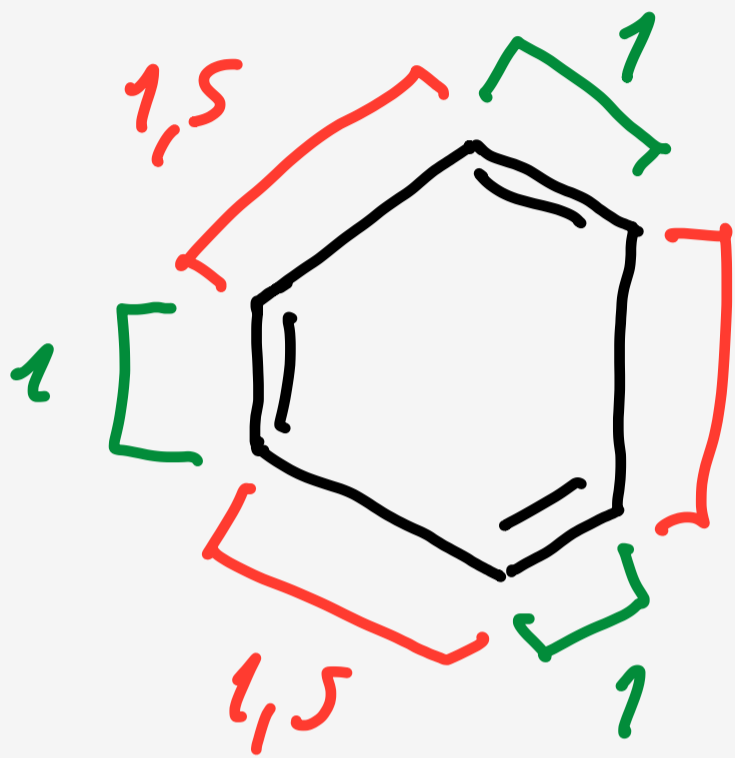
ALCHI

$$\pi (\delta + \pi) = 1 \text{ \AA}$$

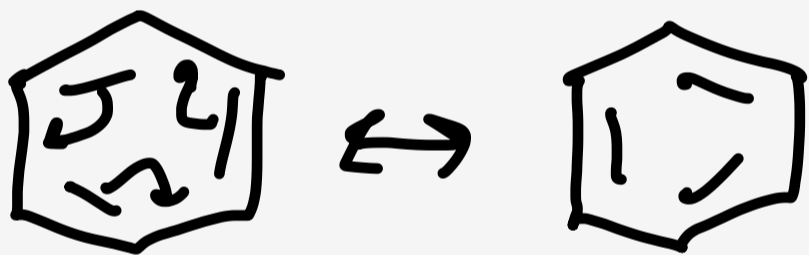
ALCHEN

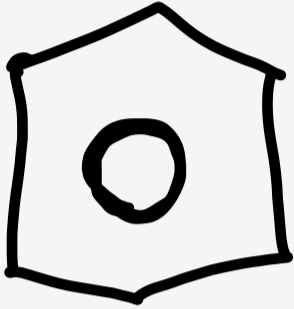
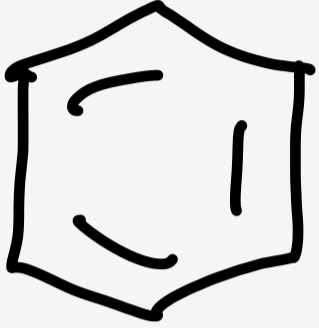
$$2\pi (\delta + 2\pi) = 0,6 \text{ \AA}$$

ALCHIMI

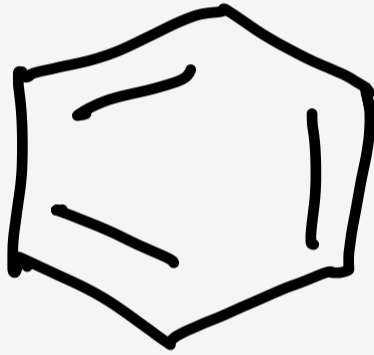
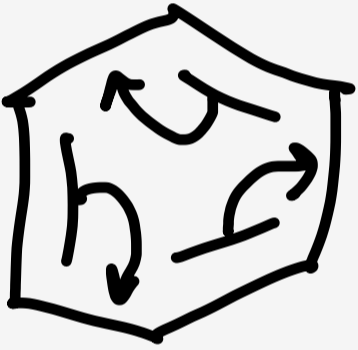


KEKULÉ





BENZENE



REGOLE DELL' AROMATICITÀ

1) CICLICO

2) PLANARE

3) TUTTI GLI ATOMI IBRIDATI sp^2

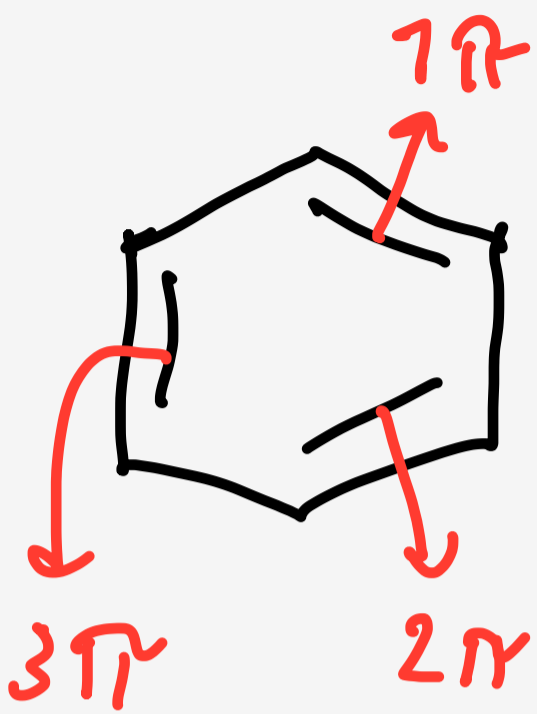
4) HÜCKEL $4n+2 = e^-$

$$\zeta(m+2) = e^{-\pi}$$

$m =$ NUMERO INTERO. (1/2/3)

SE $N =$ NUMERO INTERO. ALLORA.

IL COMPOSTO È AUTOMATICO



1) V C

2) V Φ

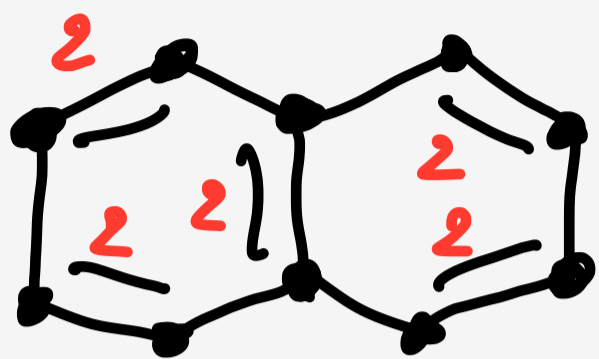
3) V SP_2

4) ??

$$4n + 2 = e^-$$

$$\begin{matrix} (1) \\ 4n + 2 = 6 \end{matrix} \quad \downarrow$$

$$OGNi \quad \pi = 2 e^-$$



ANTHRA CENE

$$10e^{-}\pi$$

1) ✓

2) ✓

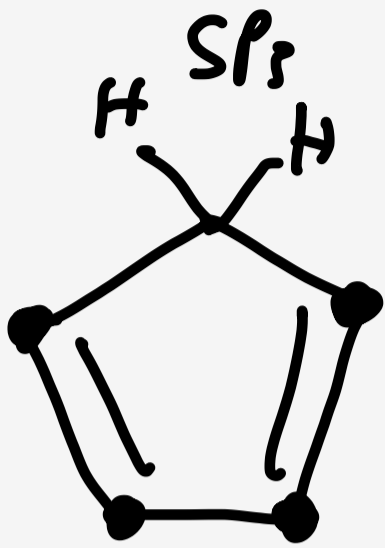
3) ✓

4) $4n+2 = e^{-}\pi$



$$4n+2 = 10 ?$$

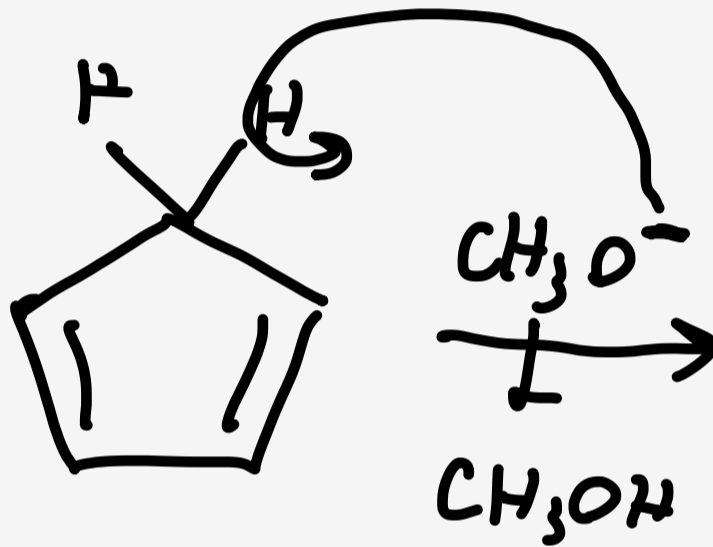
$$2$$



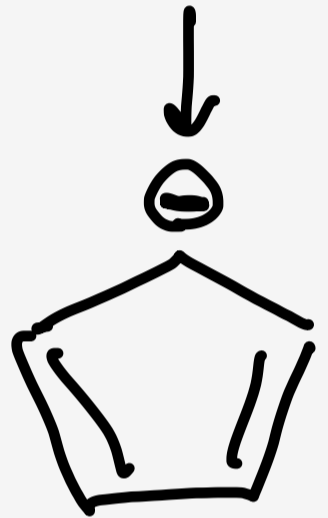
CICLO PENTA
DIENE

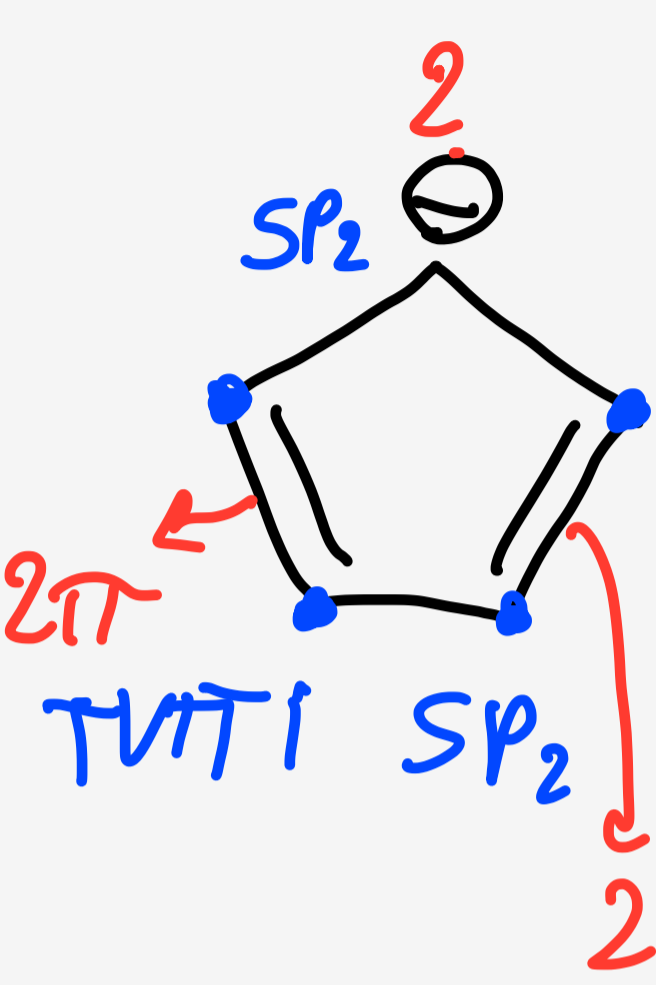
1) ✓

2) ✓



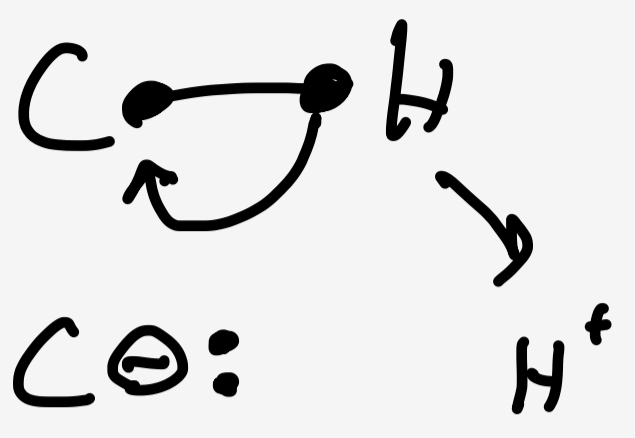
CARBANIONE





- 1) ✓
- 2) ✓
- 3) ✓

4) HÜCKEL



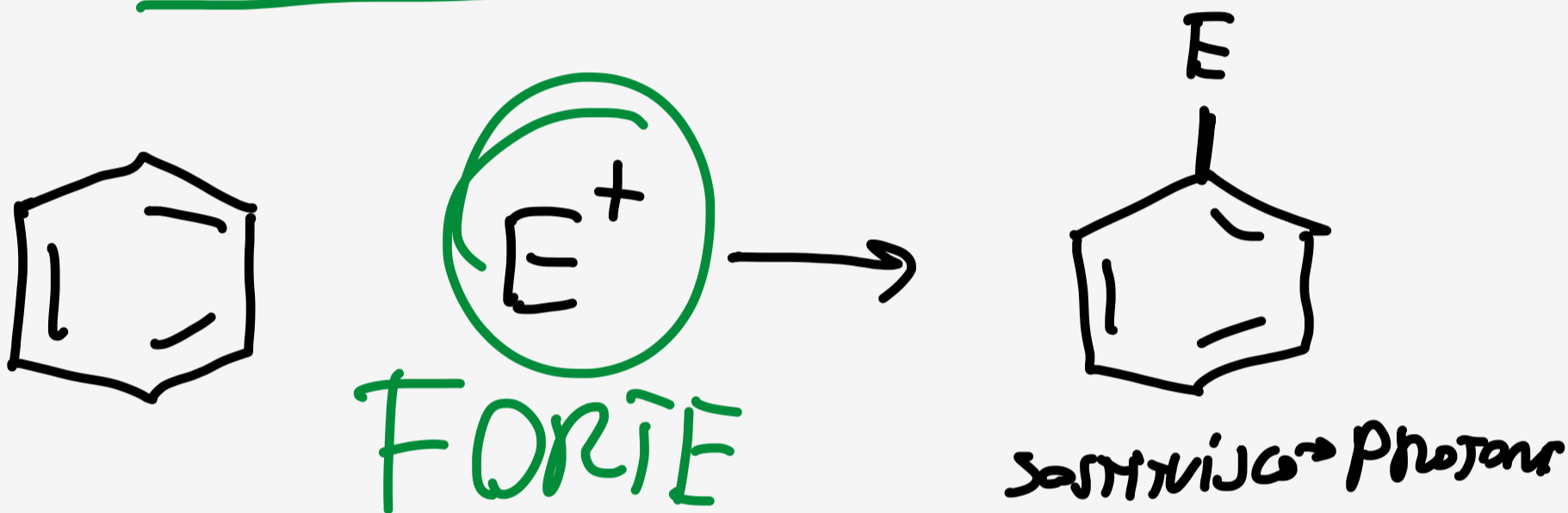
$$4n + 2 = 6$$

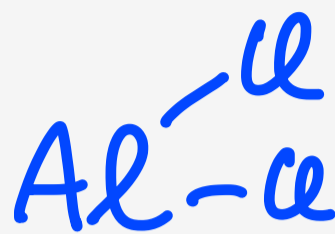
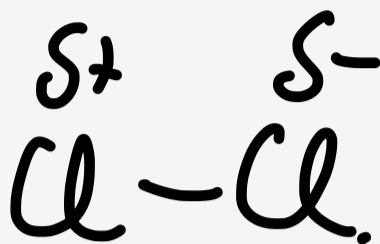
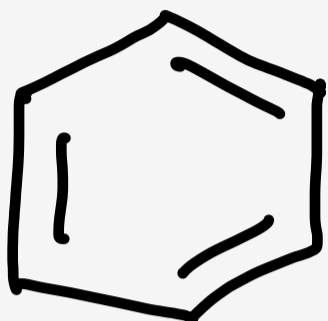
$$4 \times 1 + 2 = 6$$

CICLOPENTA DIENIL ANIONE

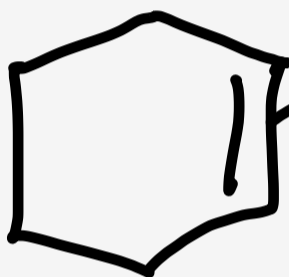
REAZIONI AROMATICI??

SOSTITUZIONE ELETTROFILA AROMATICA

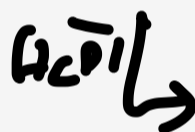
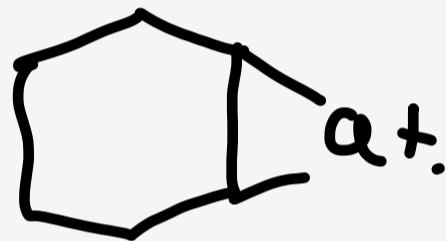
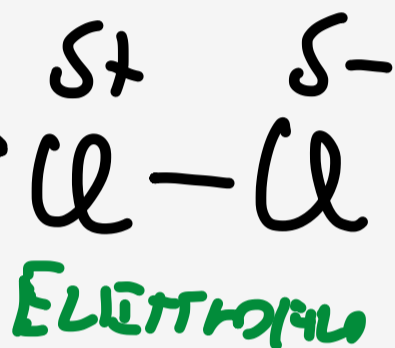


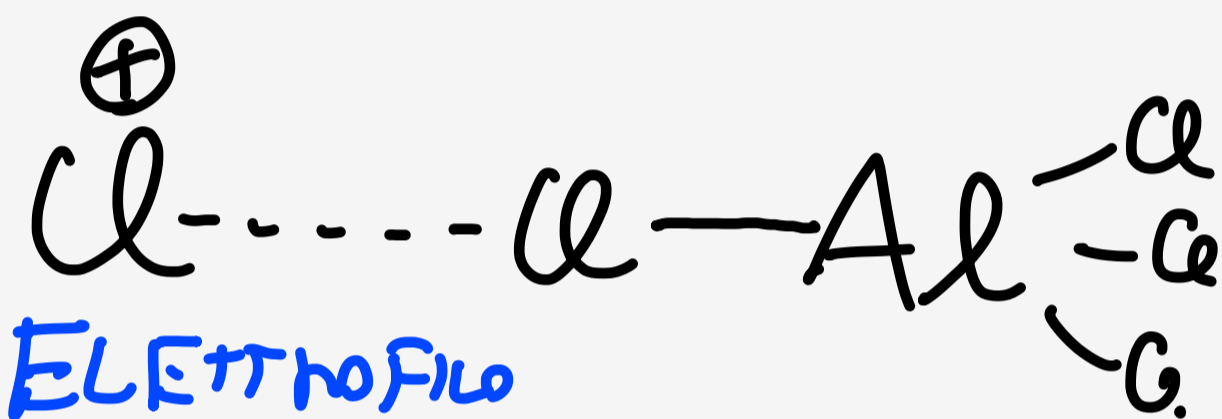
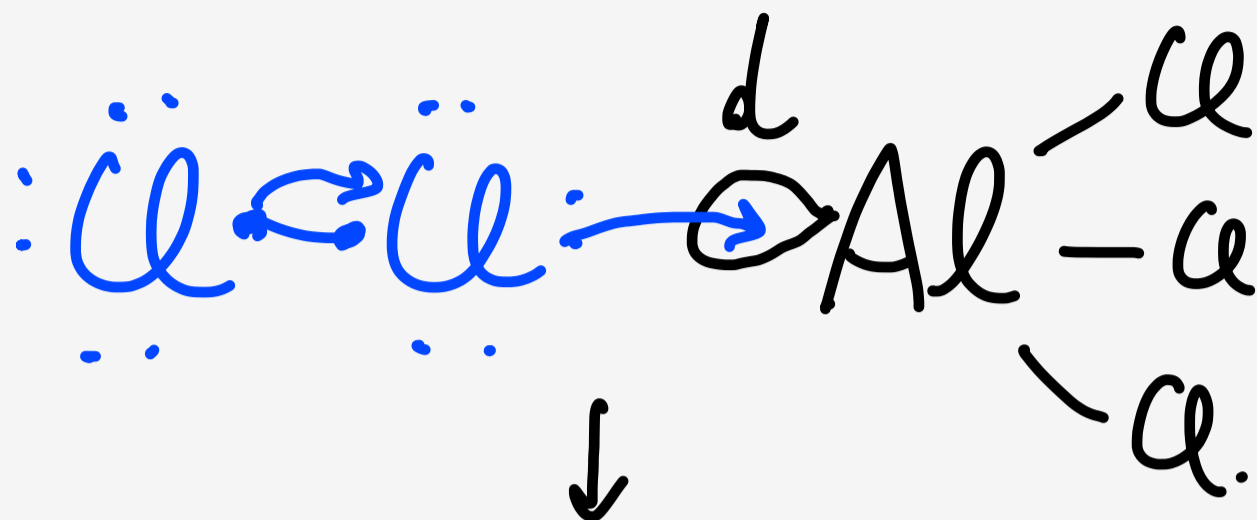


ALIBO pi LEBER.

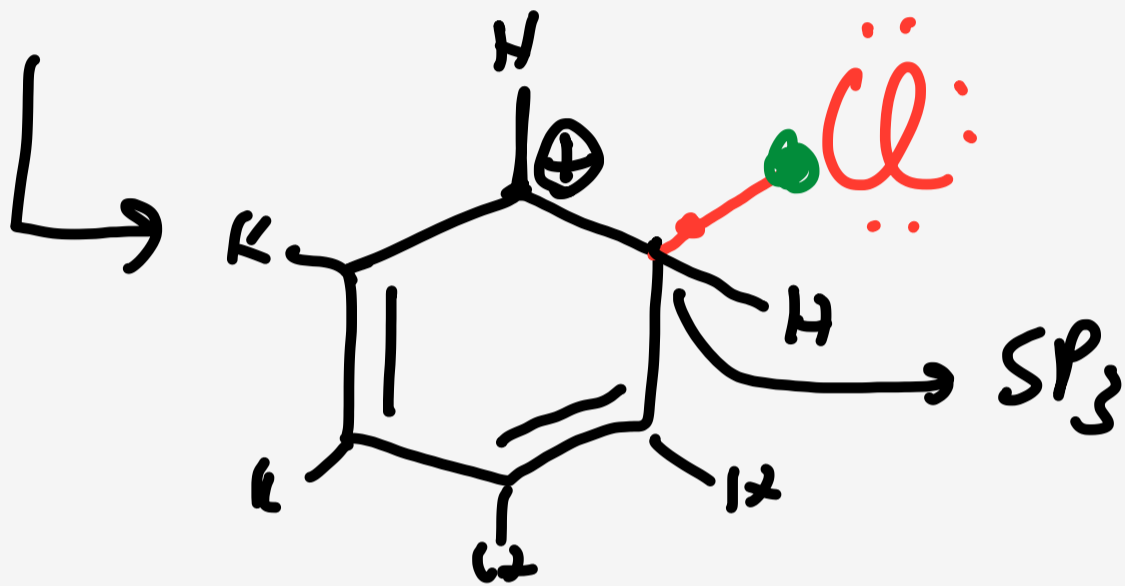
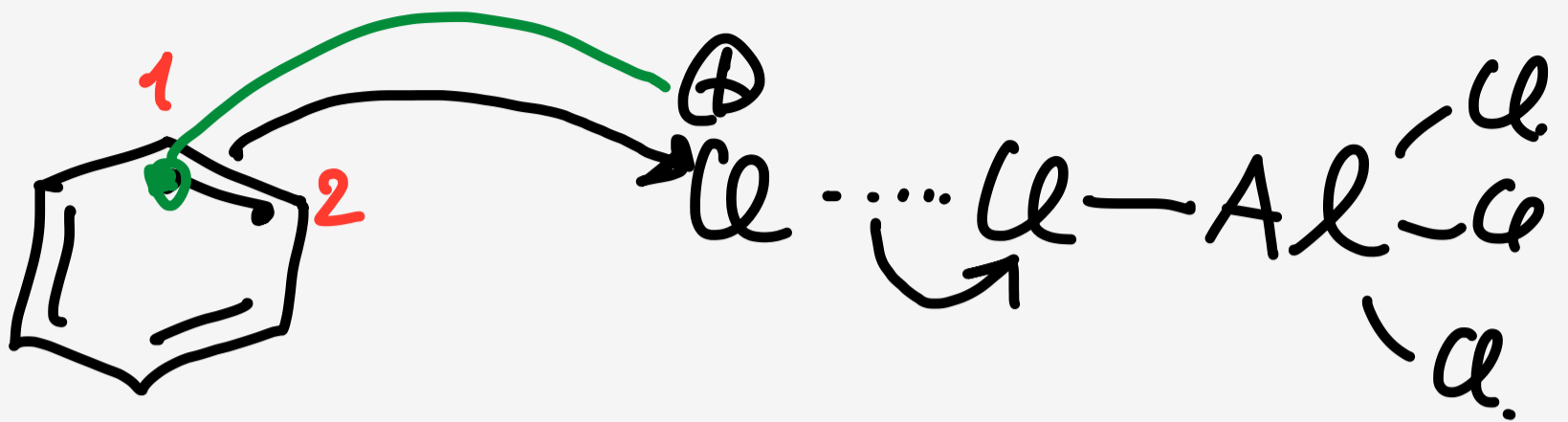


NUCLEOFILO.

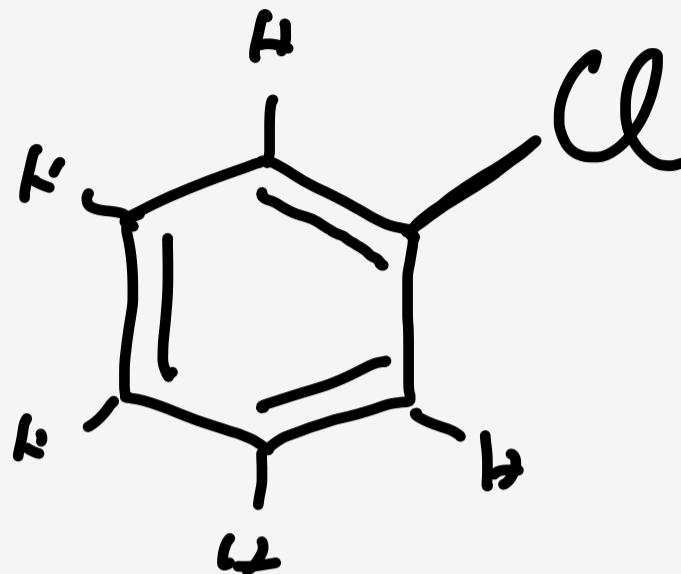
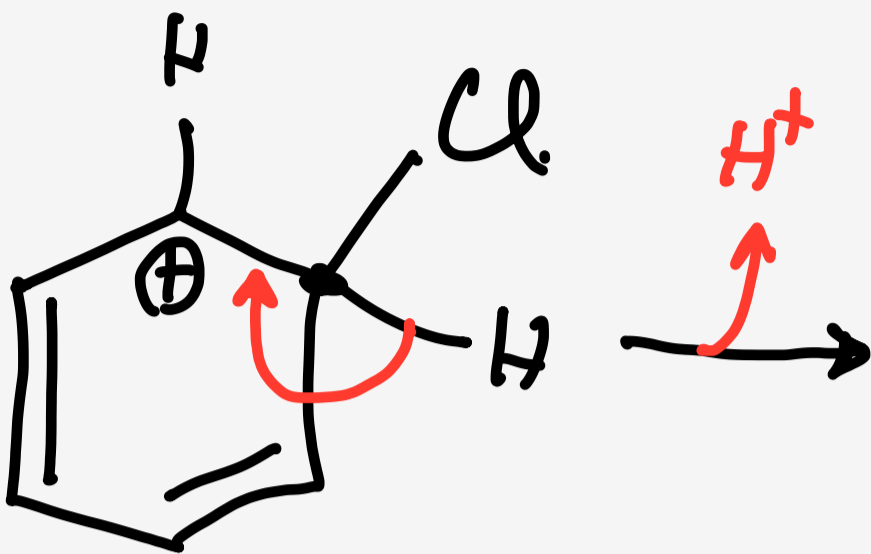




ELETTROFILO
FORTISSIMO

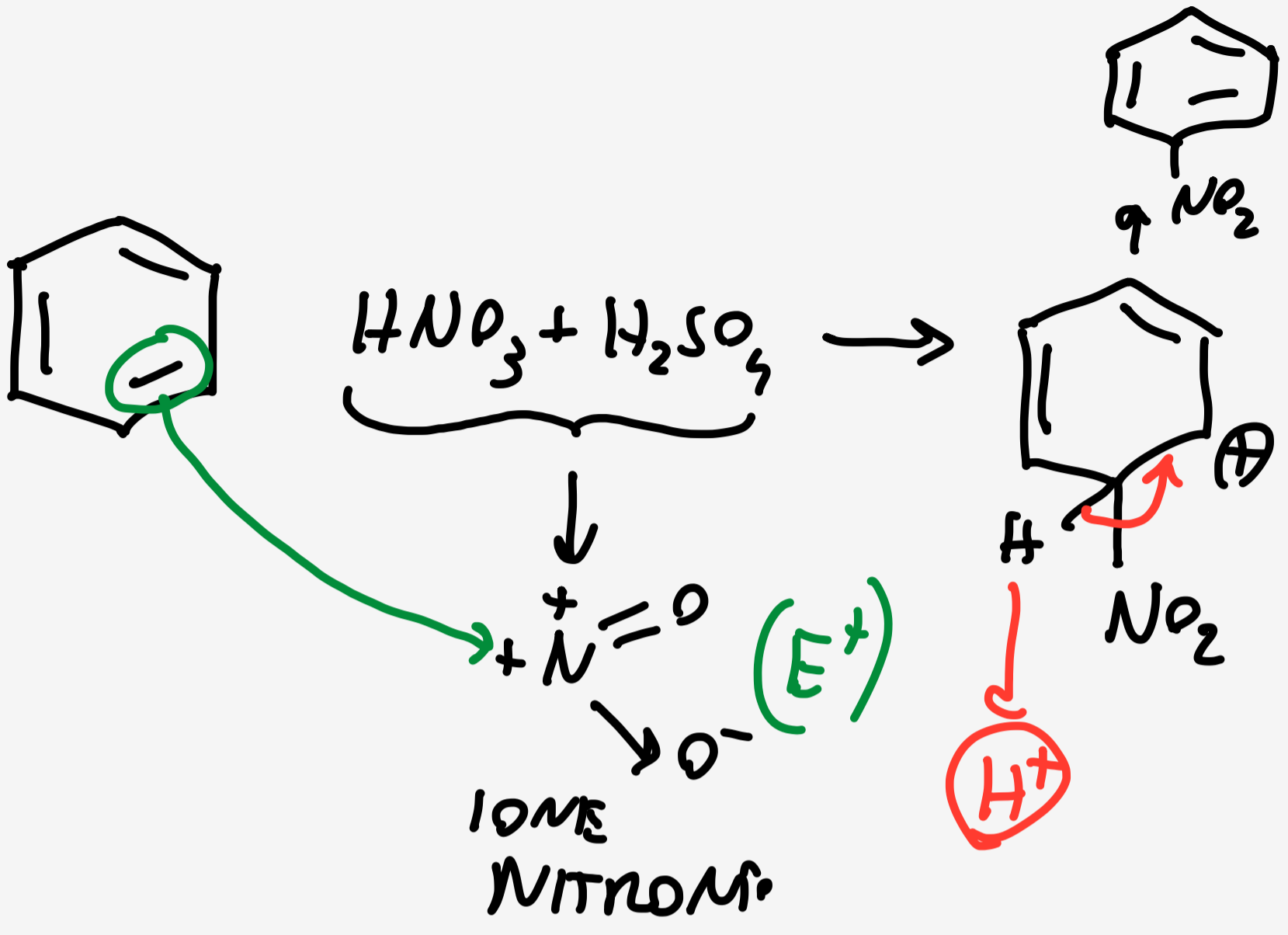


NO ANOMALOUS
CATIONIC



CLORO - BENZENE





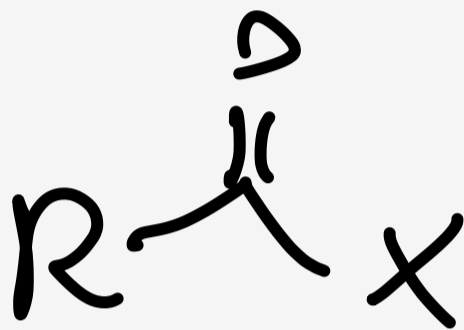
FRIEDEL CRAFT.



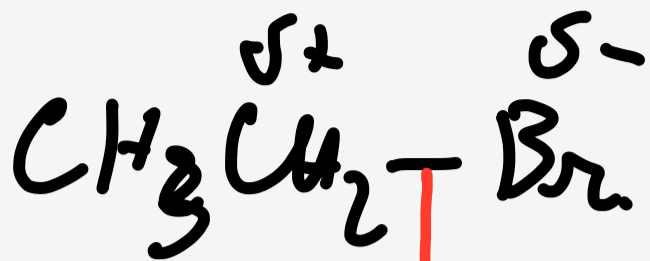
ALCHILAZIONE:



ACILAZIONE:

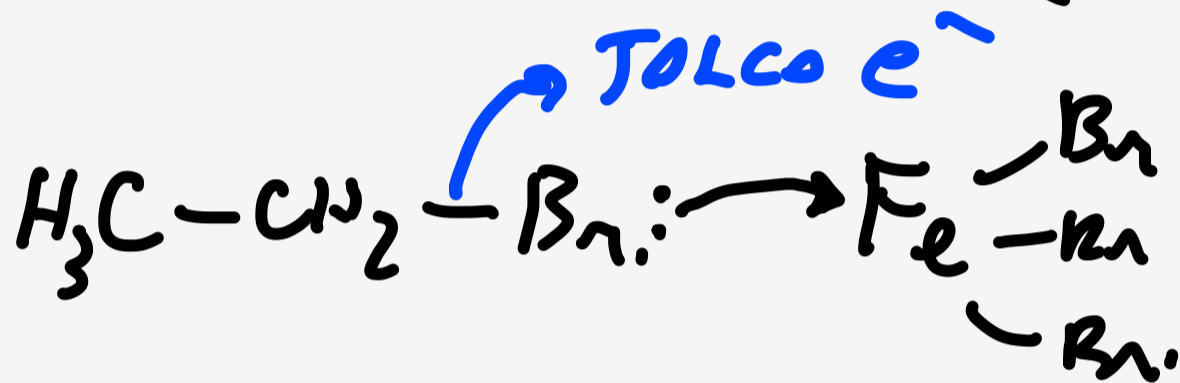


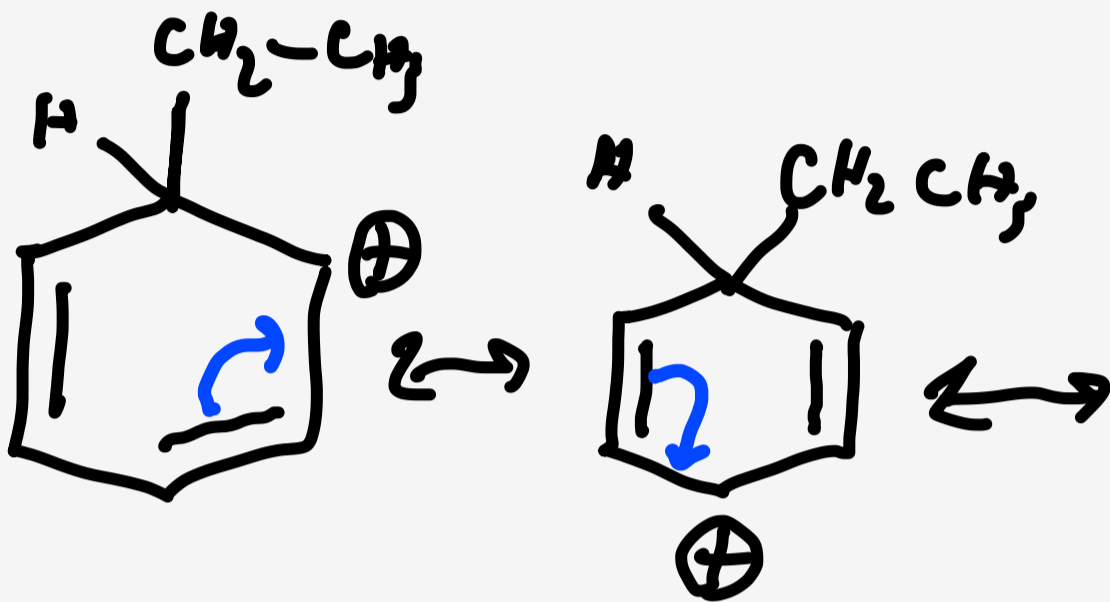
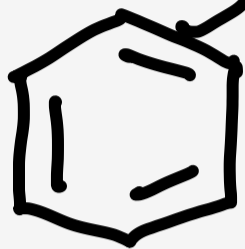
ALCHILAZIONE

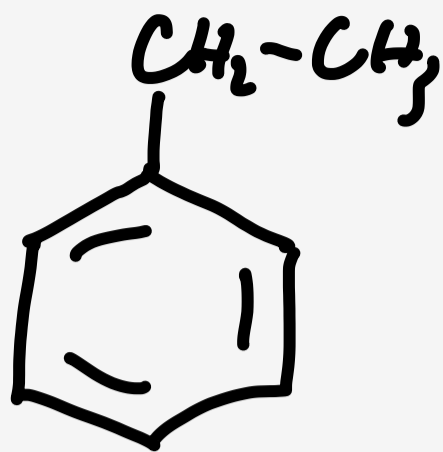
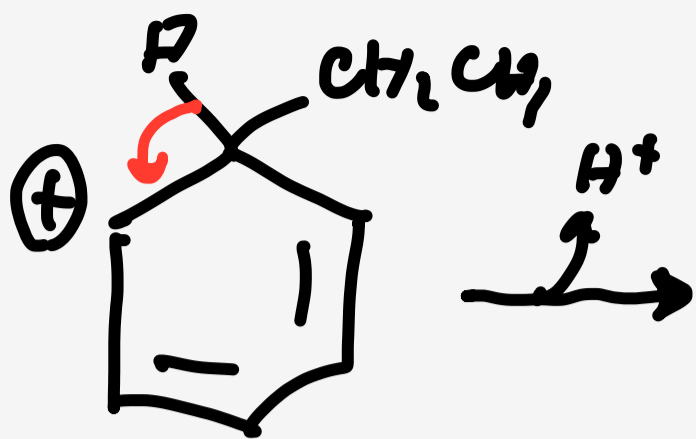


ALLUNGHI
REATTIVO

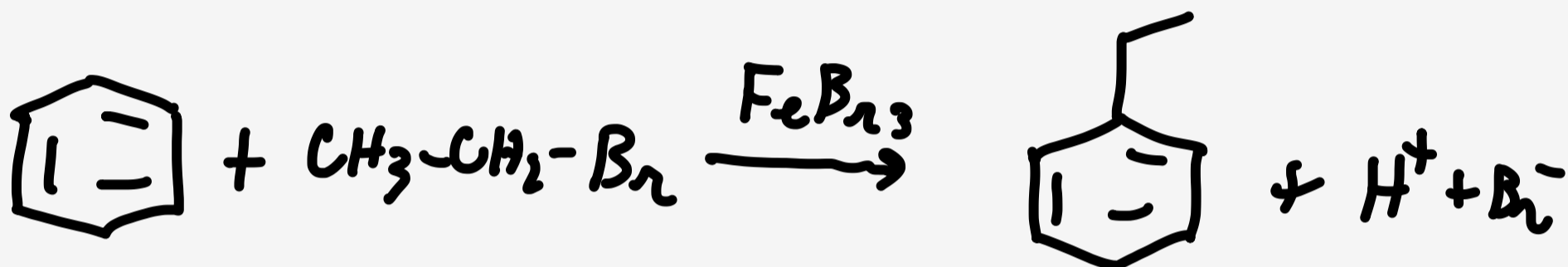
ACIDI LEWIS. ALLUNGAME LEGAME



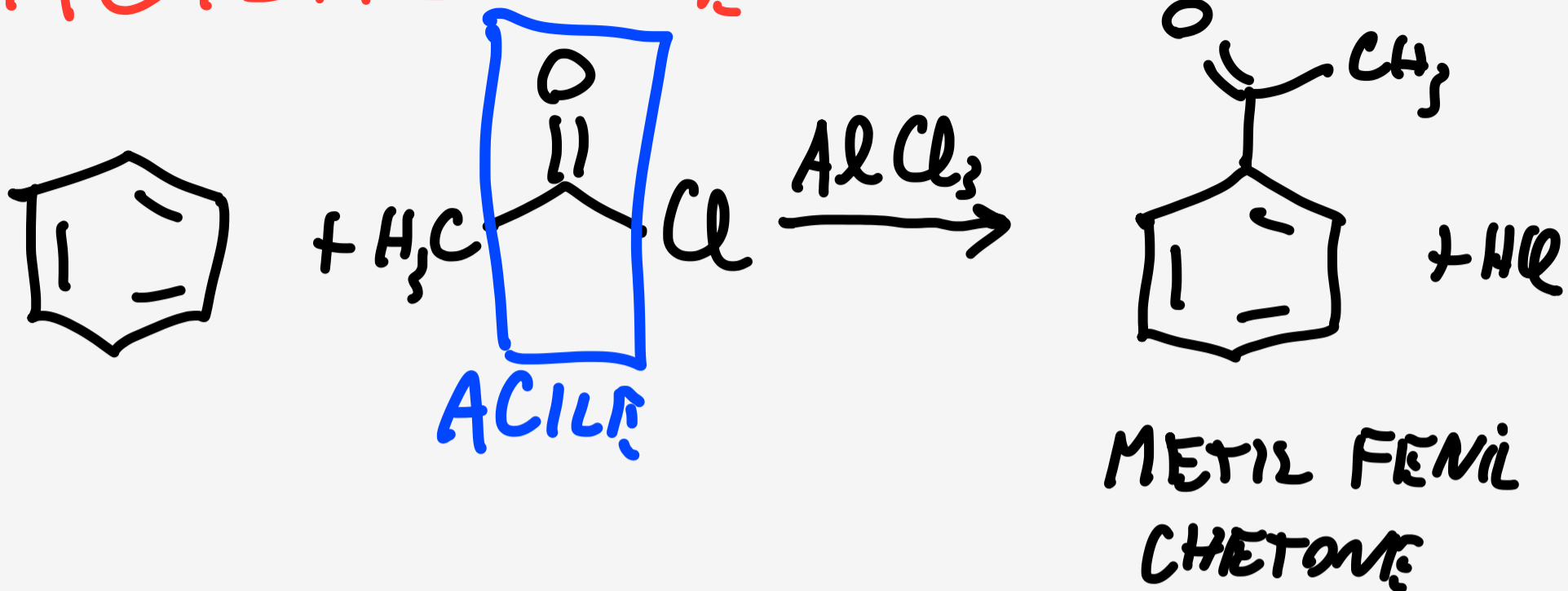




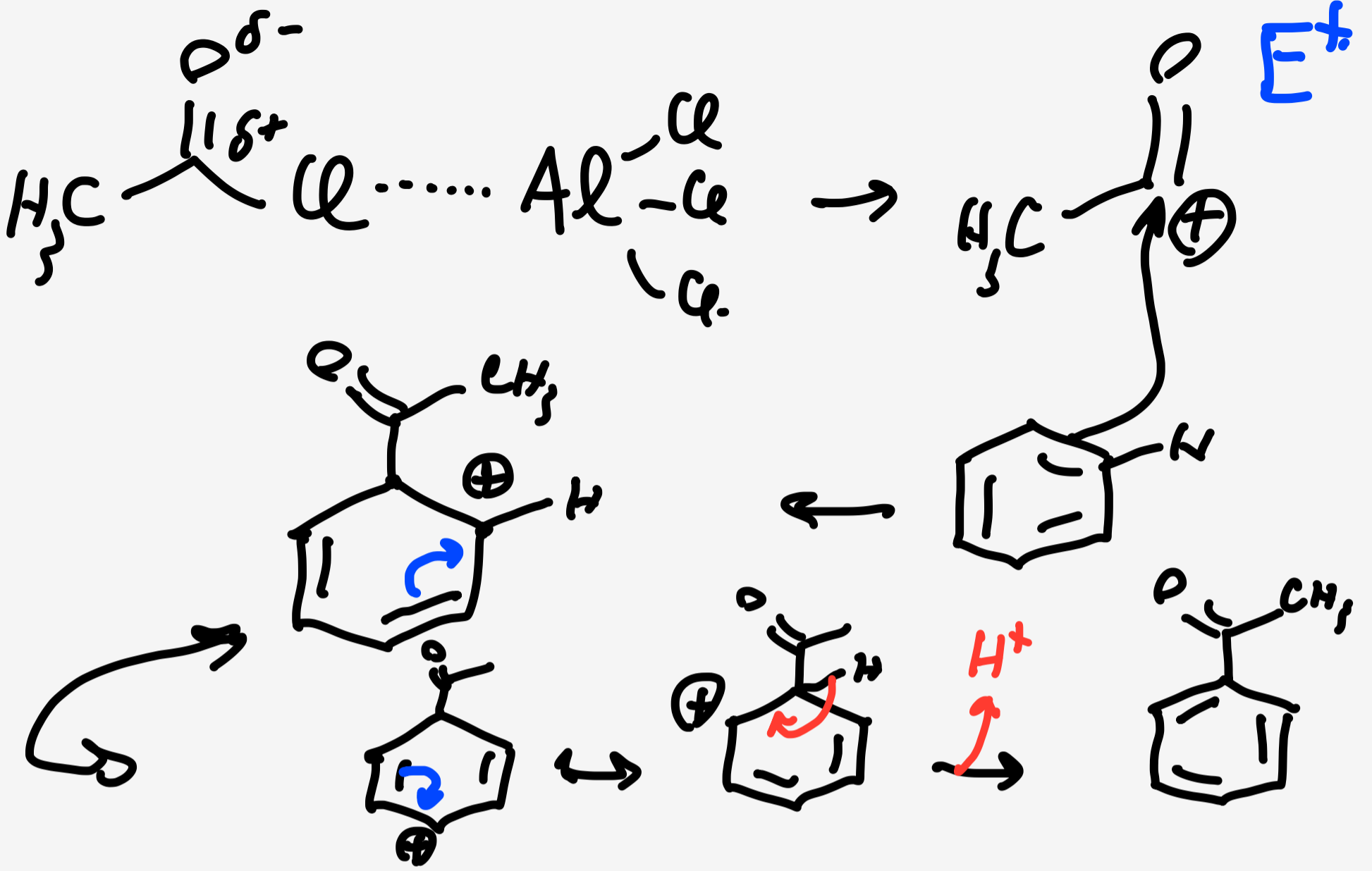
ETIL-BENZENE

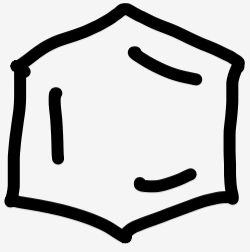


ACILAZIONE

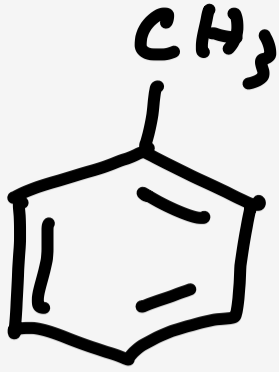


MECCANISMO





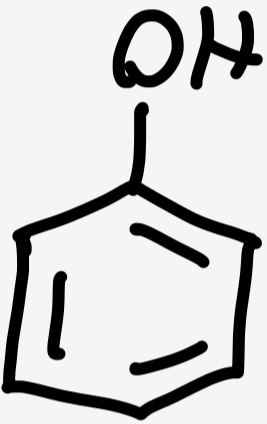
BENZENE



TOLUENE



ANILINA

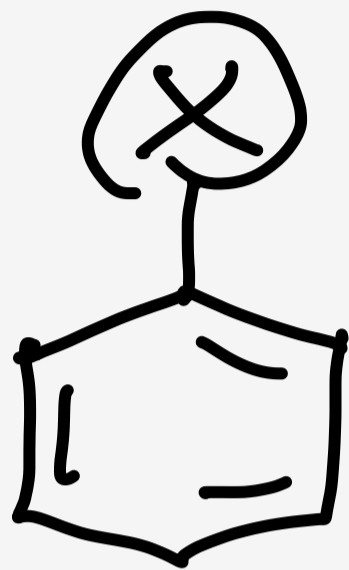
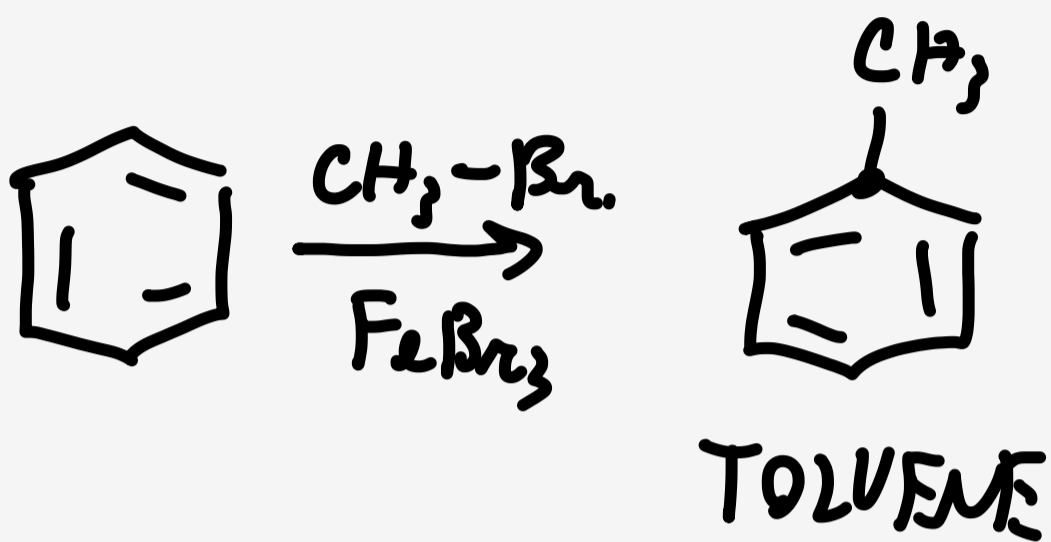


FENOLO



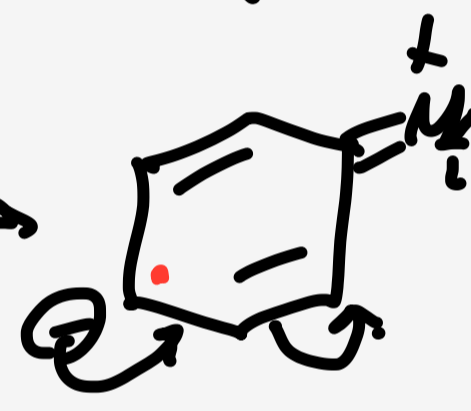
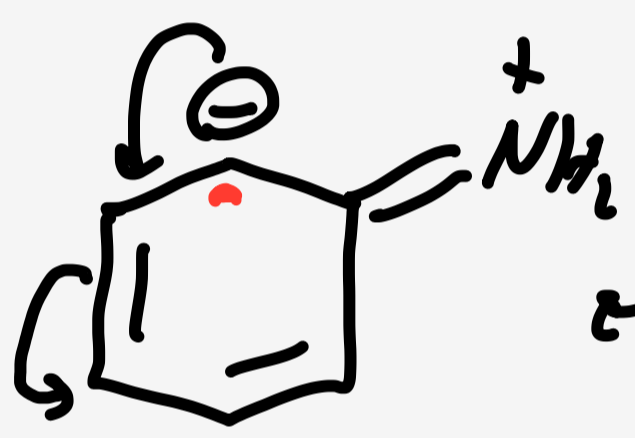
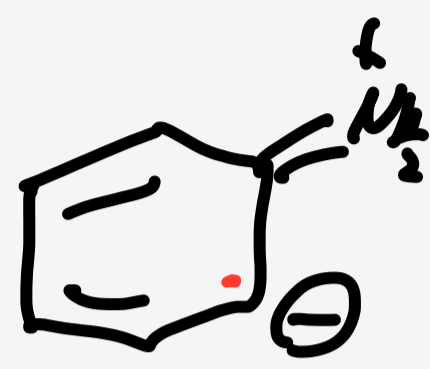
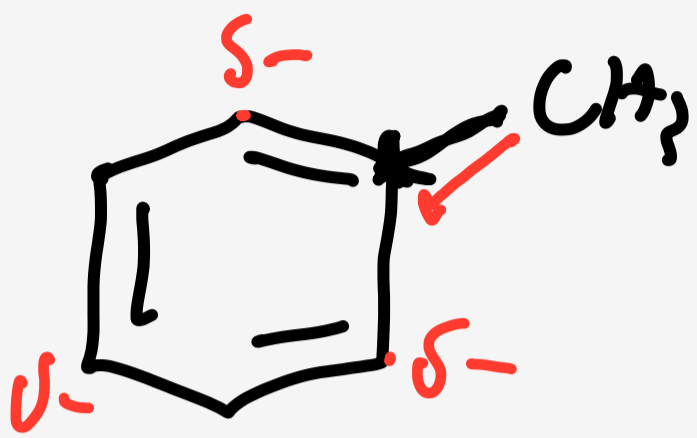
AC. BENZOICO

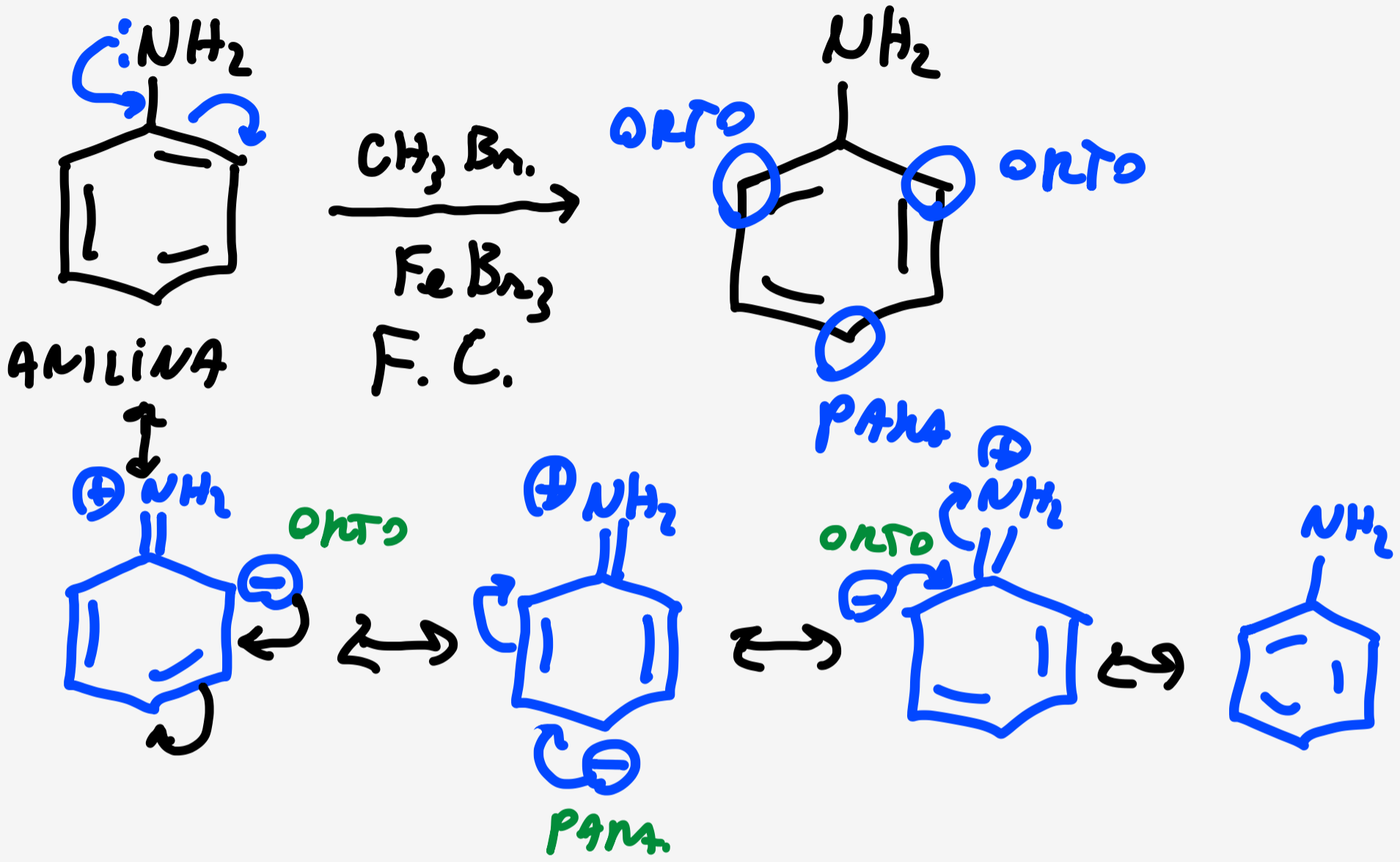
2° SOSTITUZIONE:

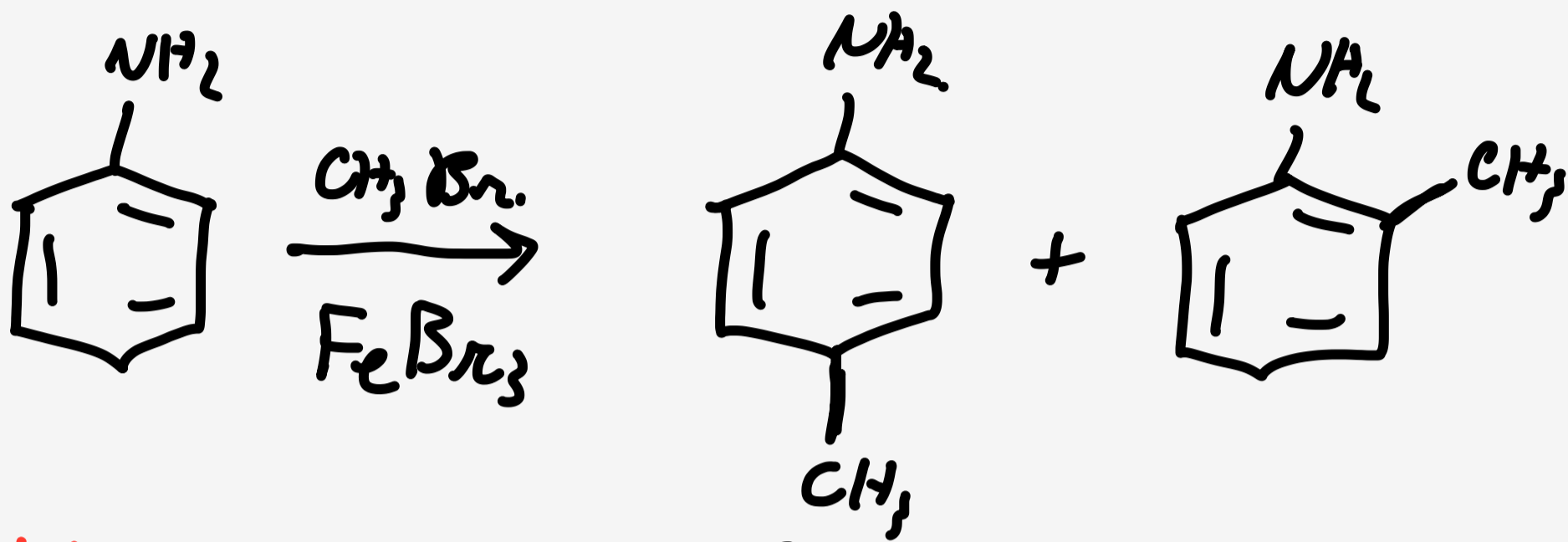


$\text{X} =$ ELETTRON DONATORI

$\text{X} =$ ELETTRON ATTRATTORI





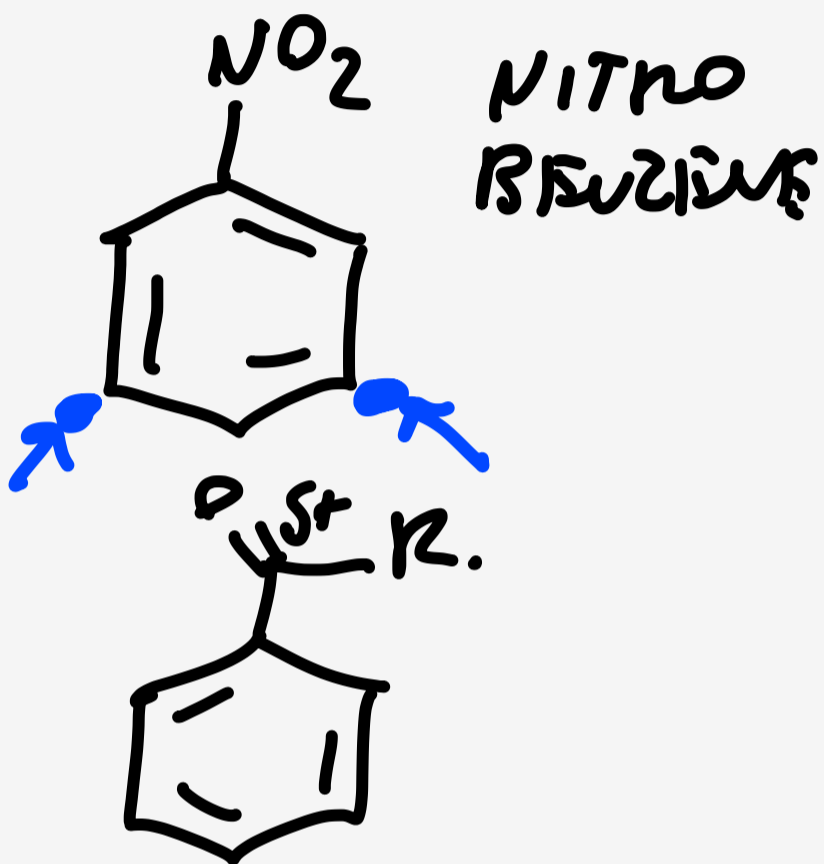


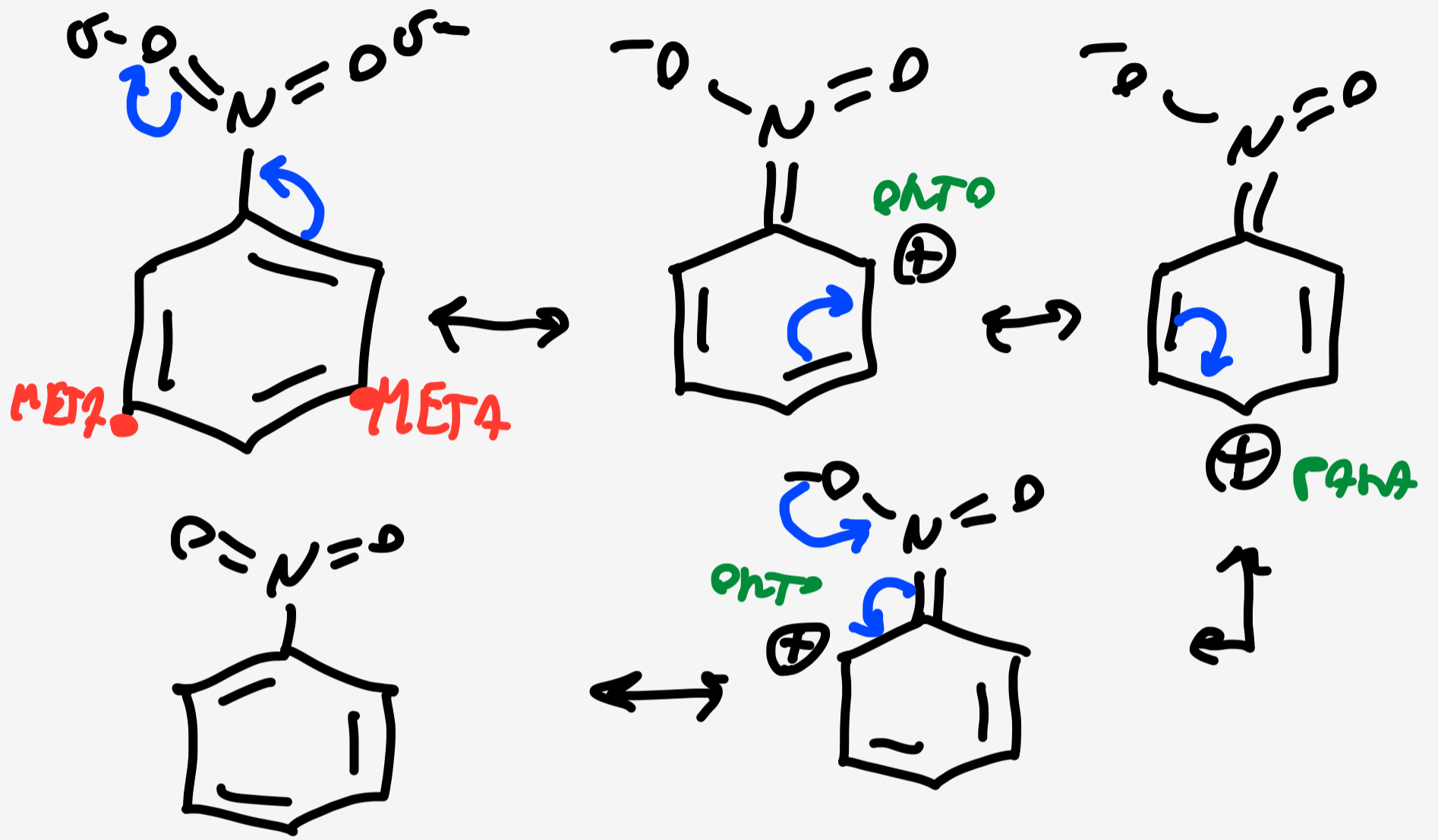
ELETTRODONNATORI
 ATTIVANTI L'ANELLO

ORTO-PARA ORIENTANTI

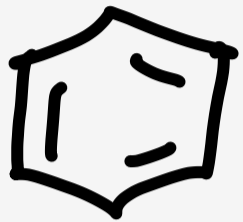
ELETTRONON ATTIVATORE

DISATTIVANTI
META ORIENTANTI



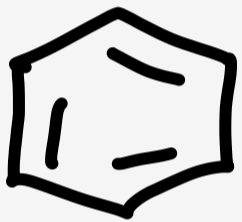


AROMATICITĂȚI



PERCHĂ STABILĂ

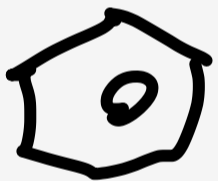
1)
2)
3)
4)



SE A
→

ACIHO
LEWIS.

AlCl₃
FeBr₃



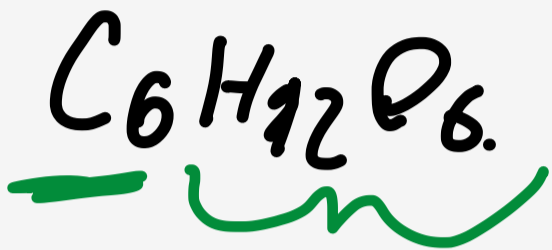
→

ORTO - PAHA

META

H₂SO₄

ZUCCHERI o CARBOIDRATI



1) IN BASE AI GRUPPI FUNZIONALI

ALDEIDE o 1 CHETONE

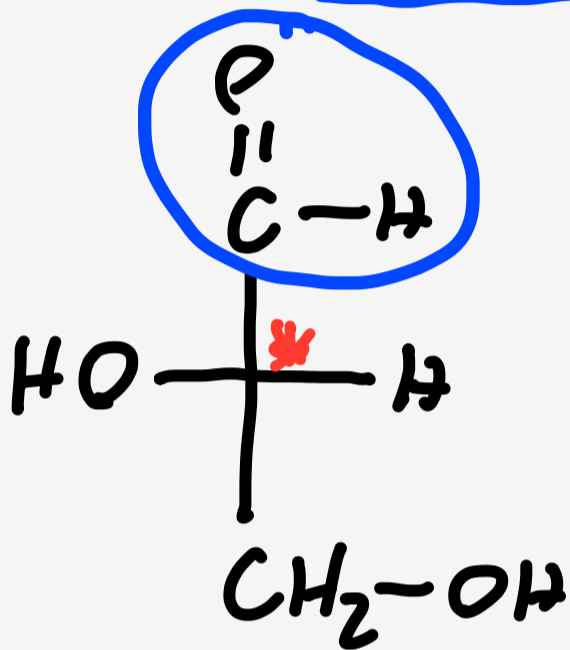
ALDOSI

CHETOSI

2) NUMERO DI ATOMI CARBONIO

ALDOSE

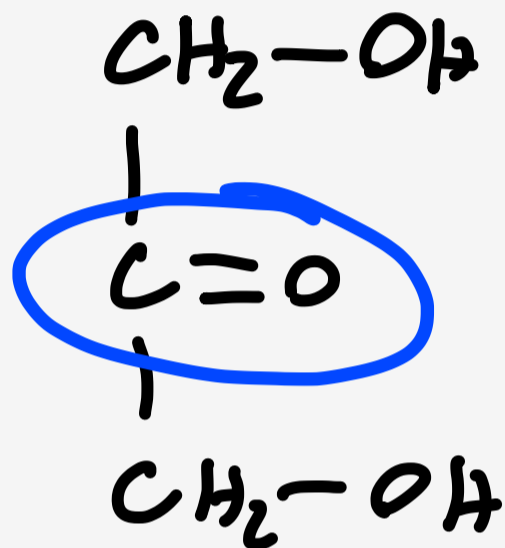
L-GLICERALDEIDE



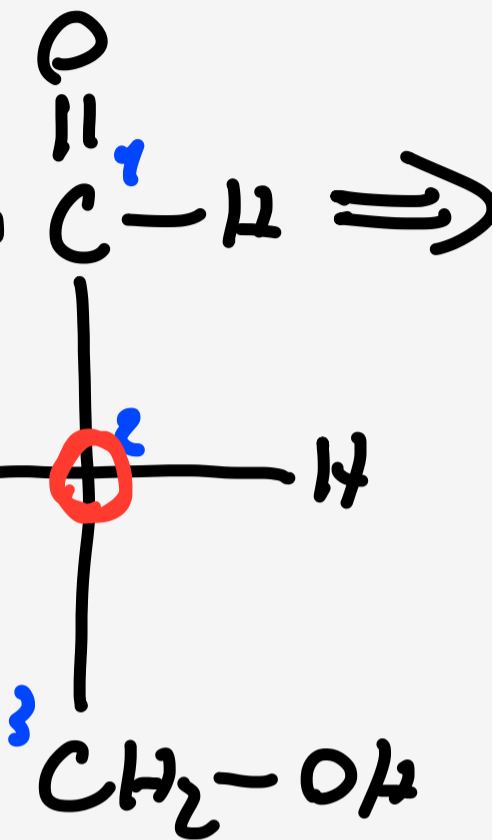
FISCHER

CHETOSI

DIDROSSI ACETONE



① RIVELLI IN
CUI L'OSSIGENIA
SULL'ULTIMO
C CHIRALE



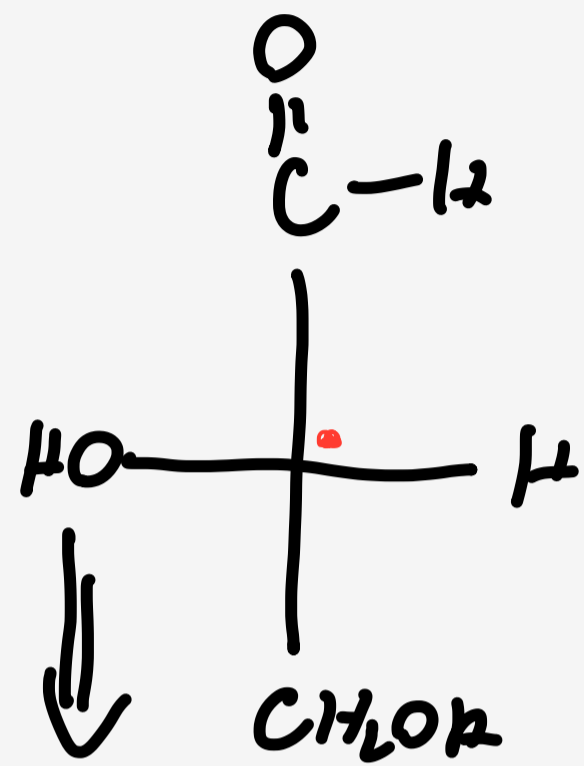
ALDEIDE
FIRST

STA A
SINISTRA

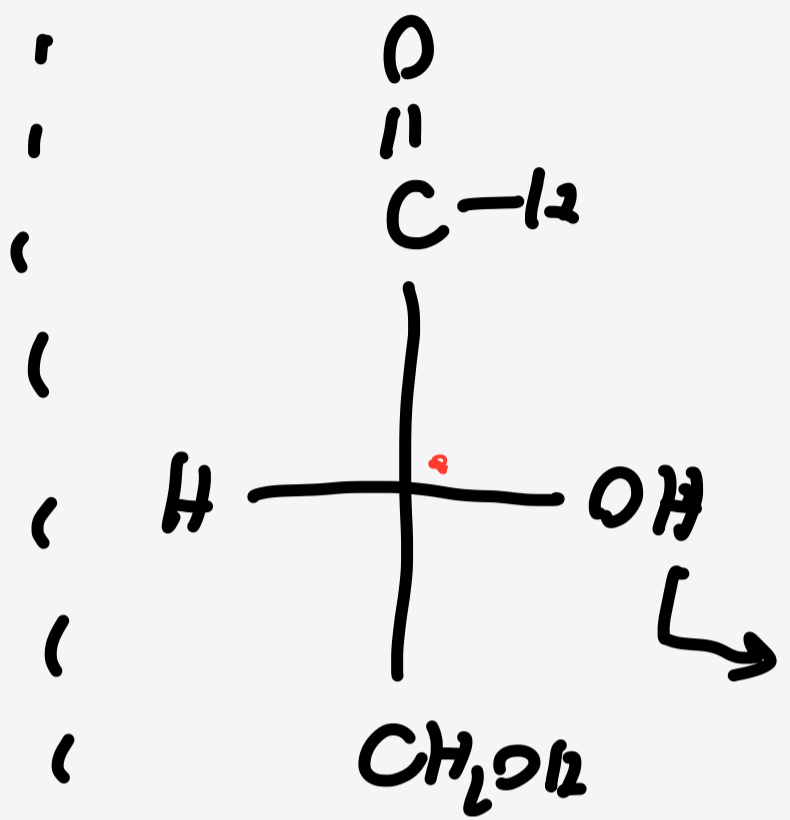


CROCE DI
FISCHER

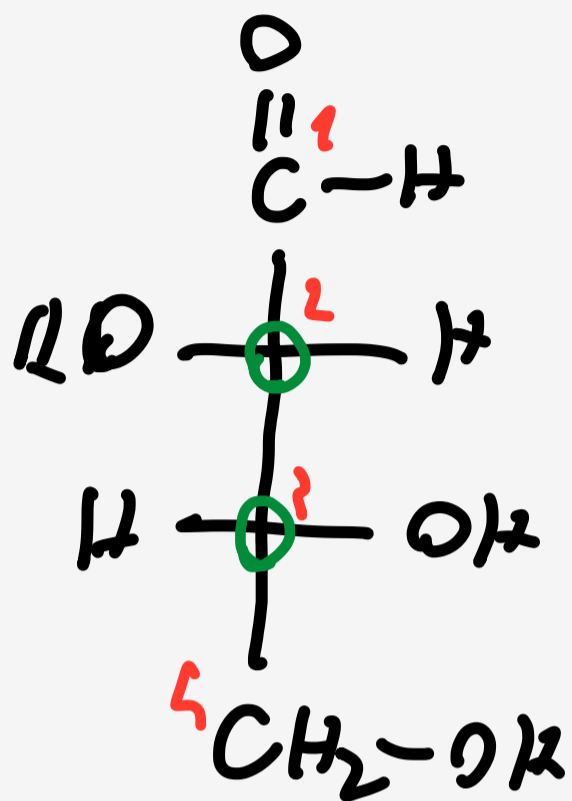
L-GLICERALDEIDE



L-GLICERALDEHYD



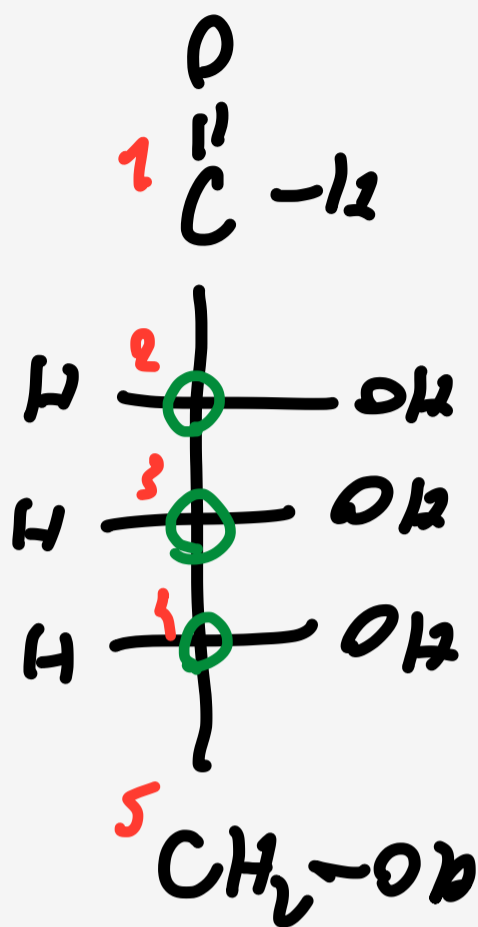
D-GLICERALDEHYD



$$2^n$$

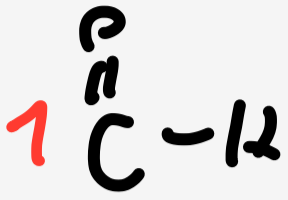
$$2^2 = 4$$

ALDOTETROSI

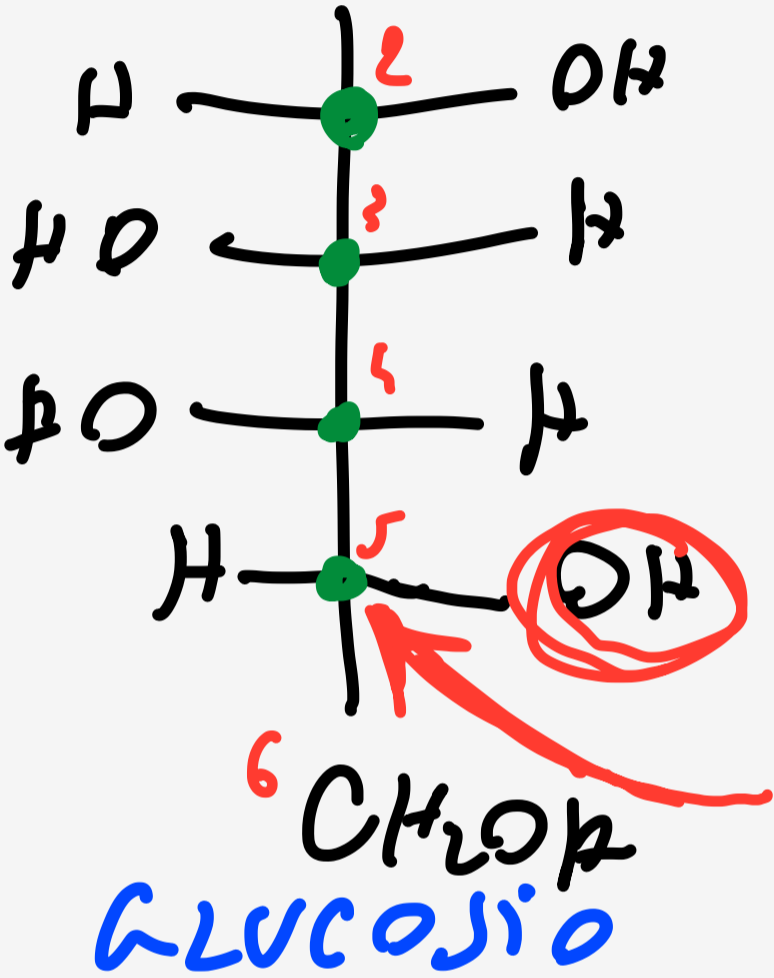


ALDOPENTOSI

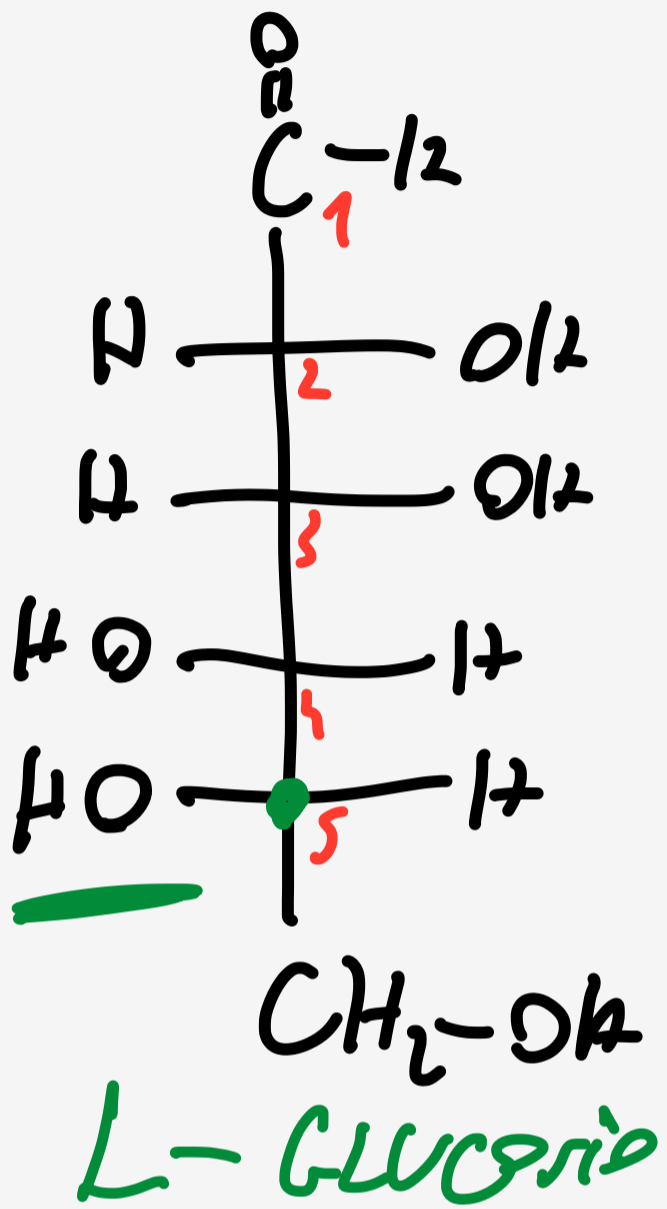
$$2^n = 2^3 = 8$$



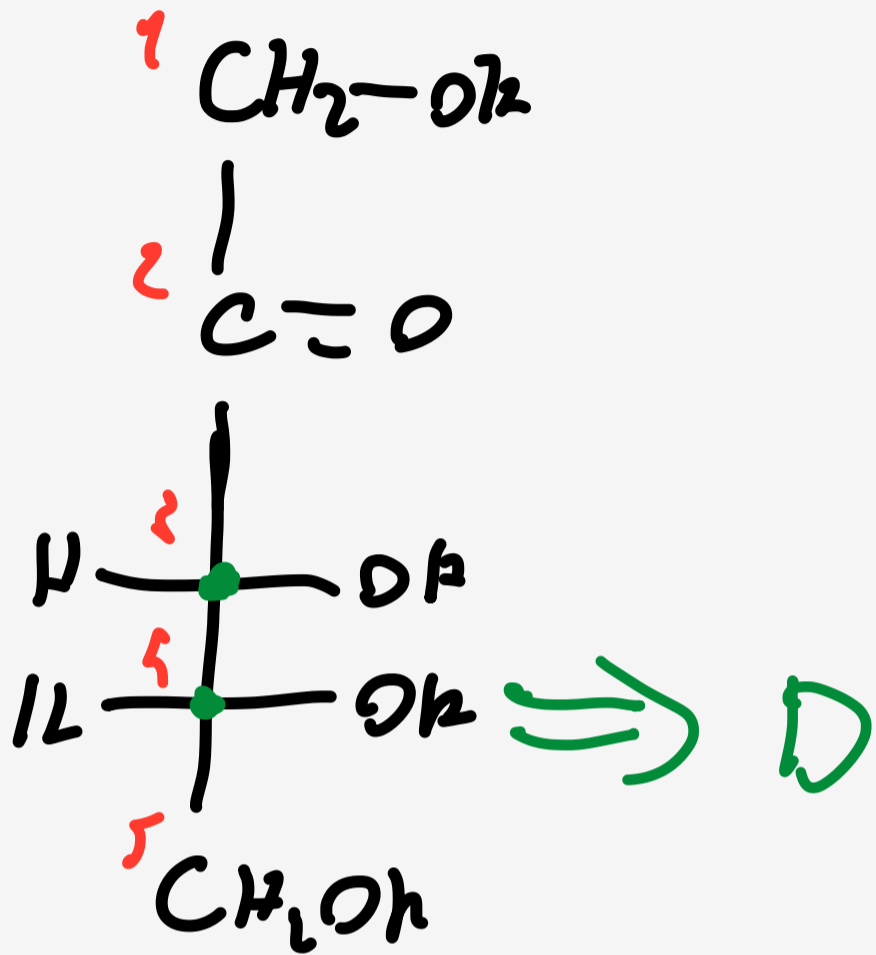
2^4 16 POSSIBILI
STEREOMEREM



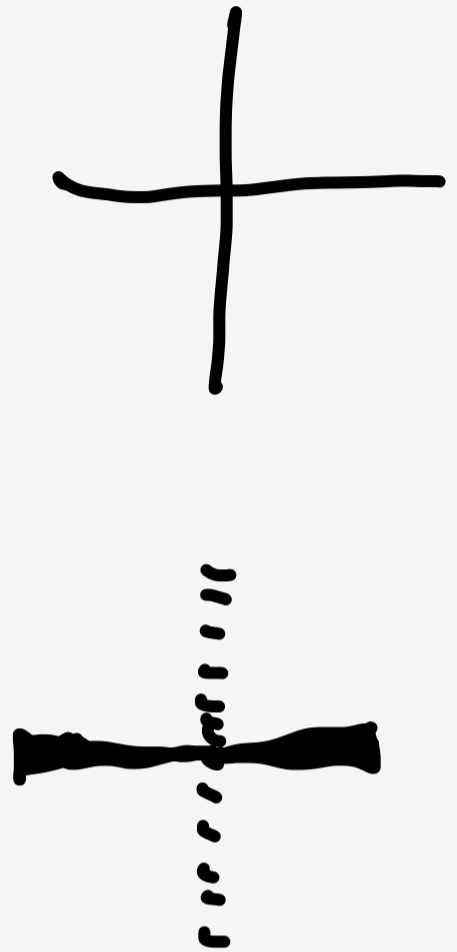
D-GLUCOSIO

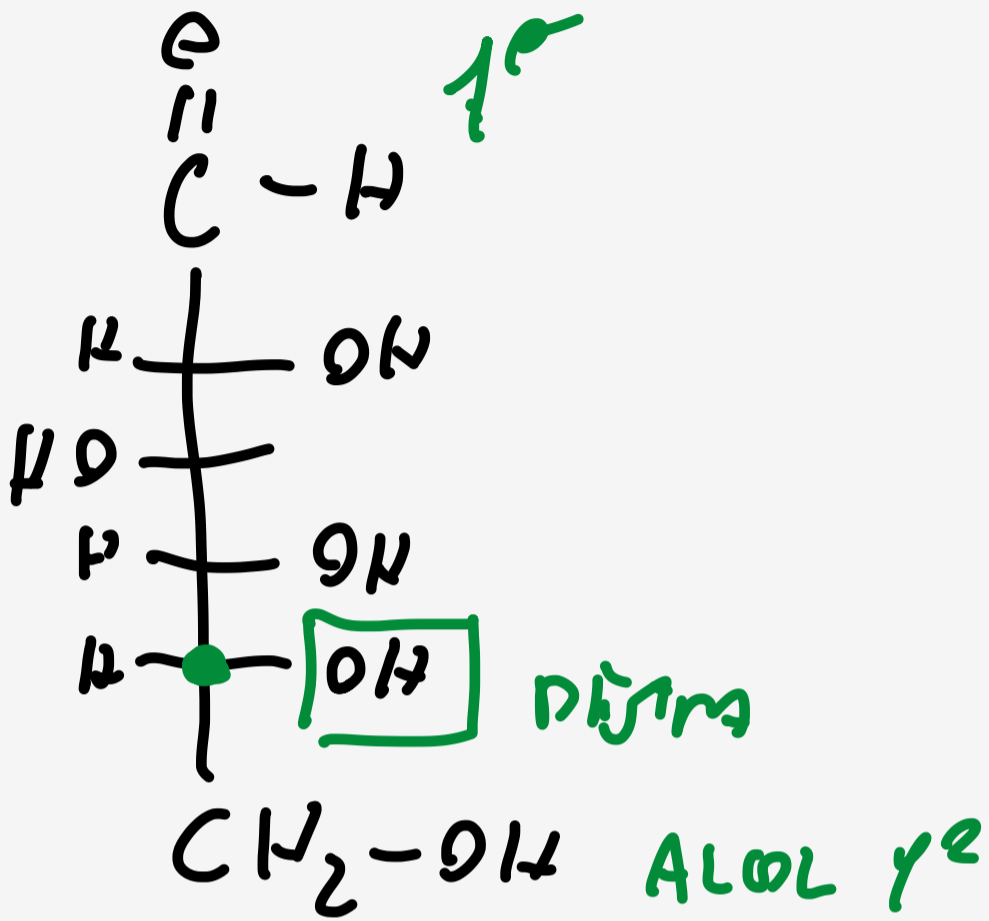


L e D GLUCOSIO
 SONO
 DIASTEREOISOMERI

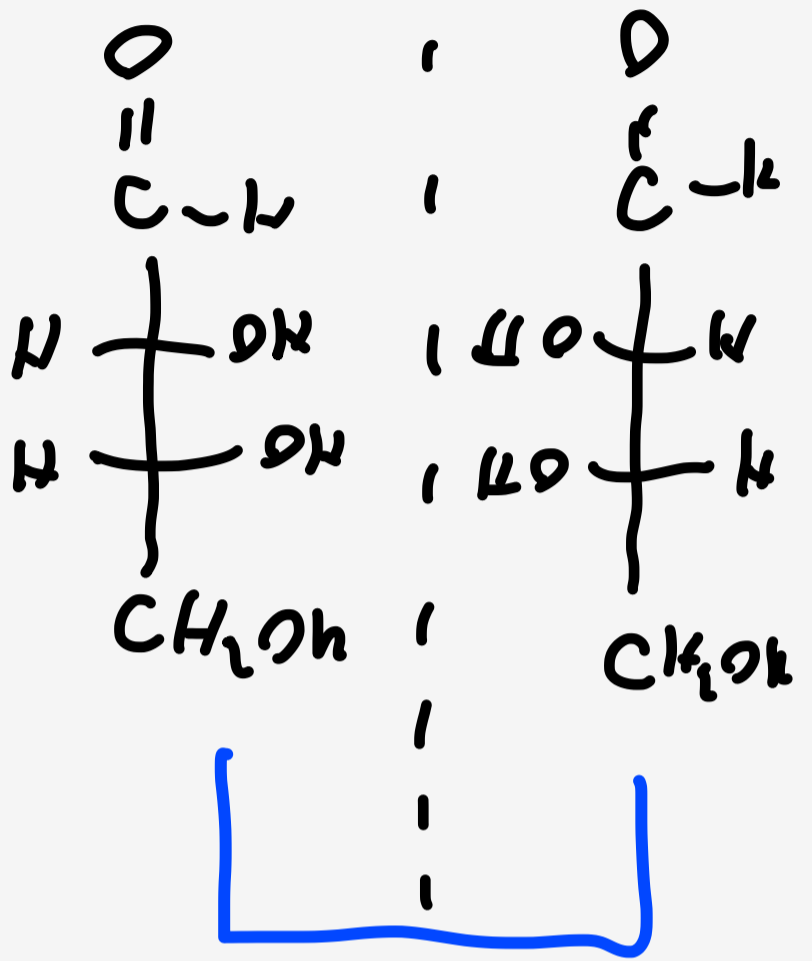


CHETO PRATO SO

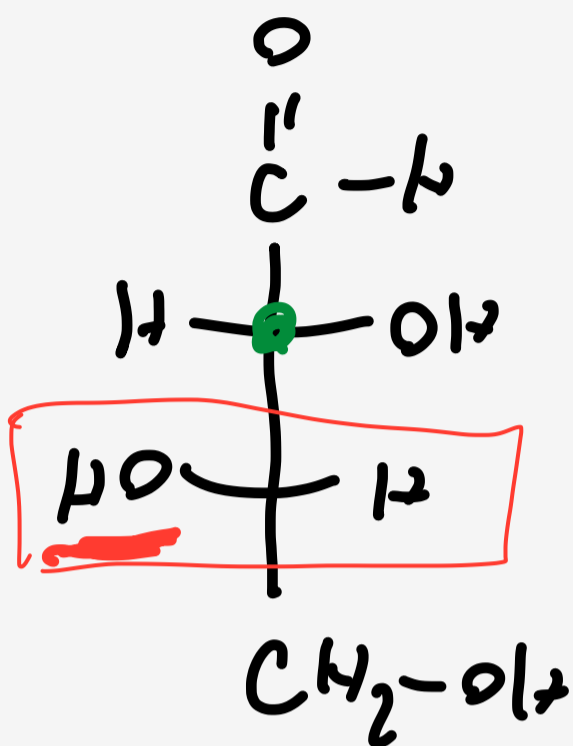
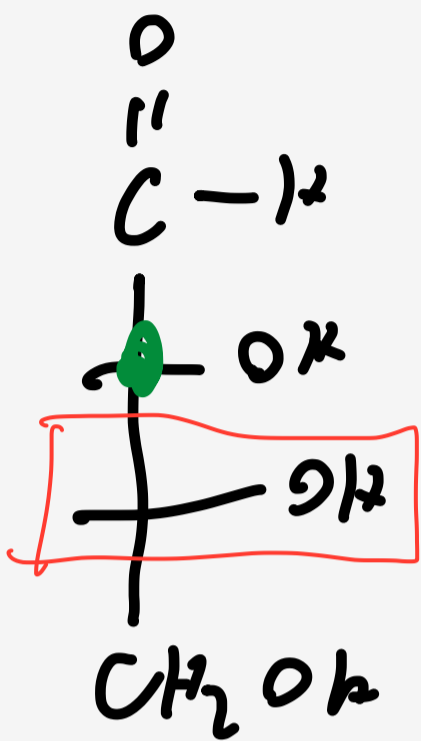




D-GLUCOSIO



ENANTIOMERI

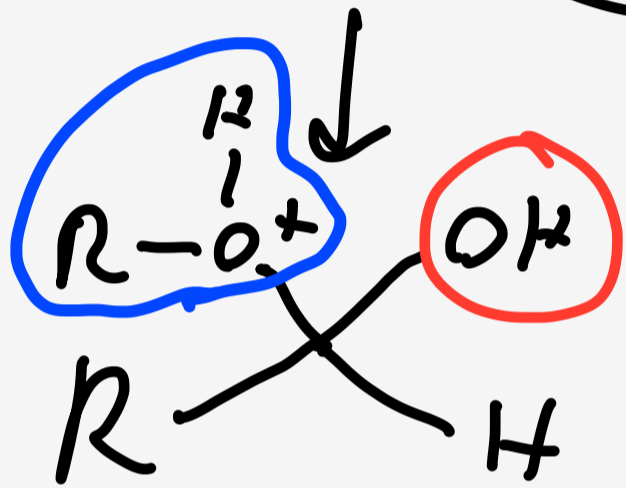
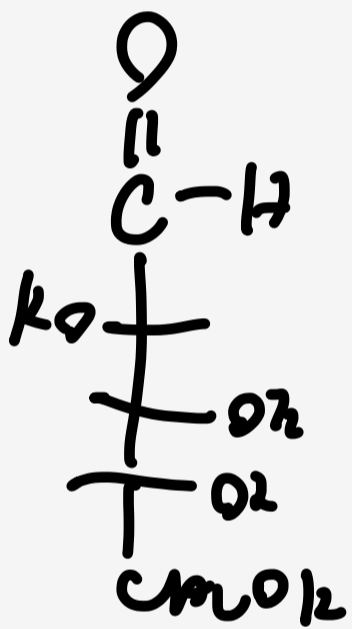
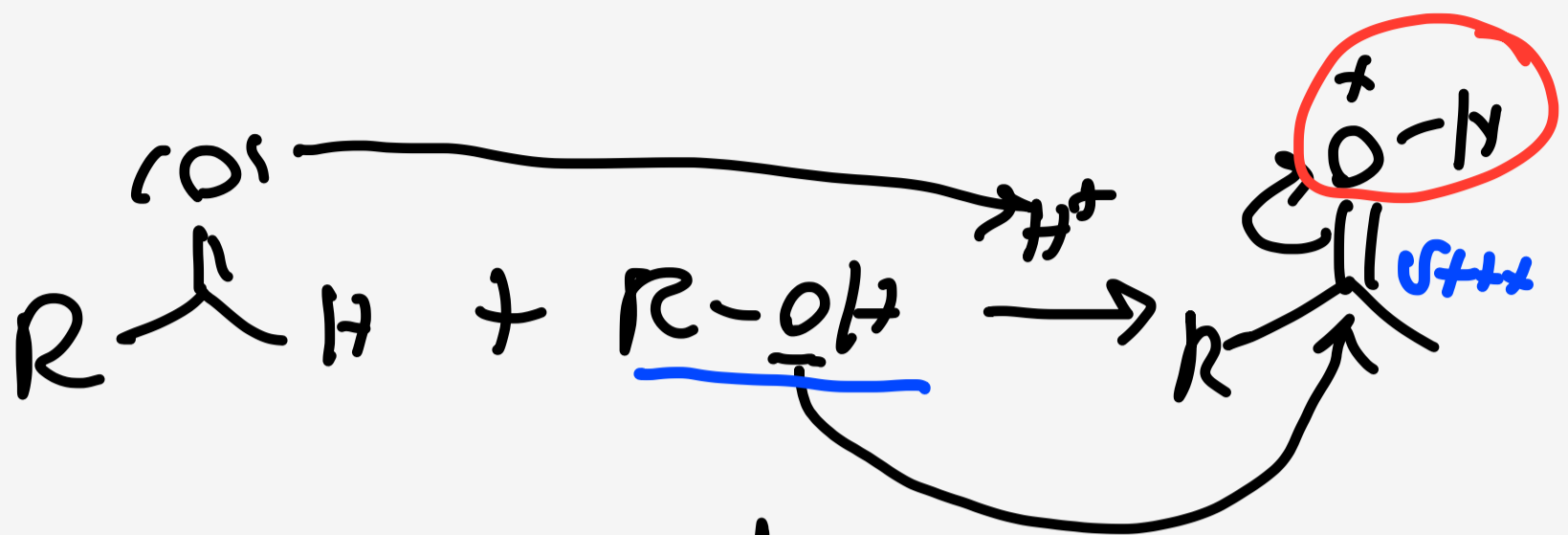


D

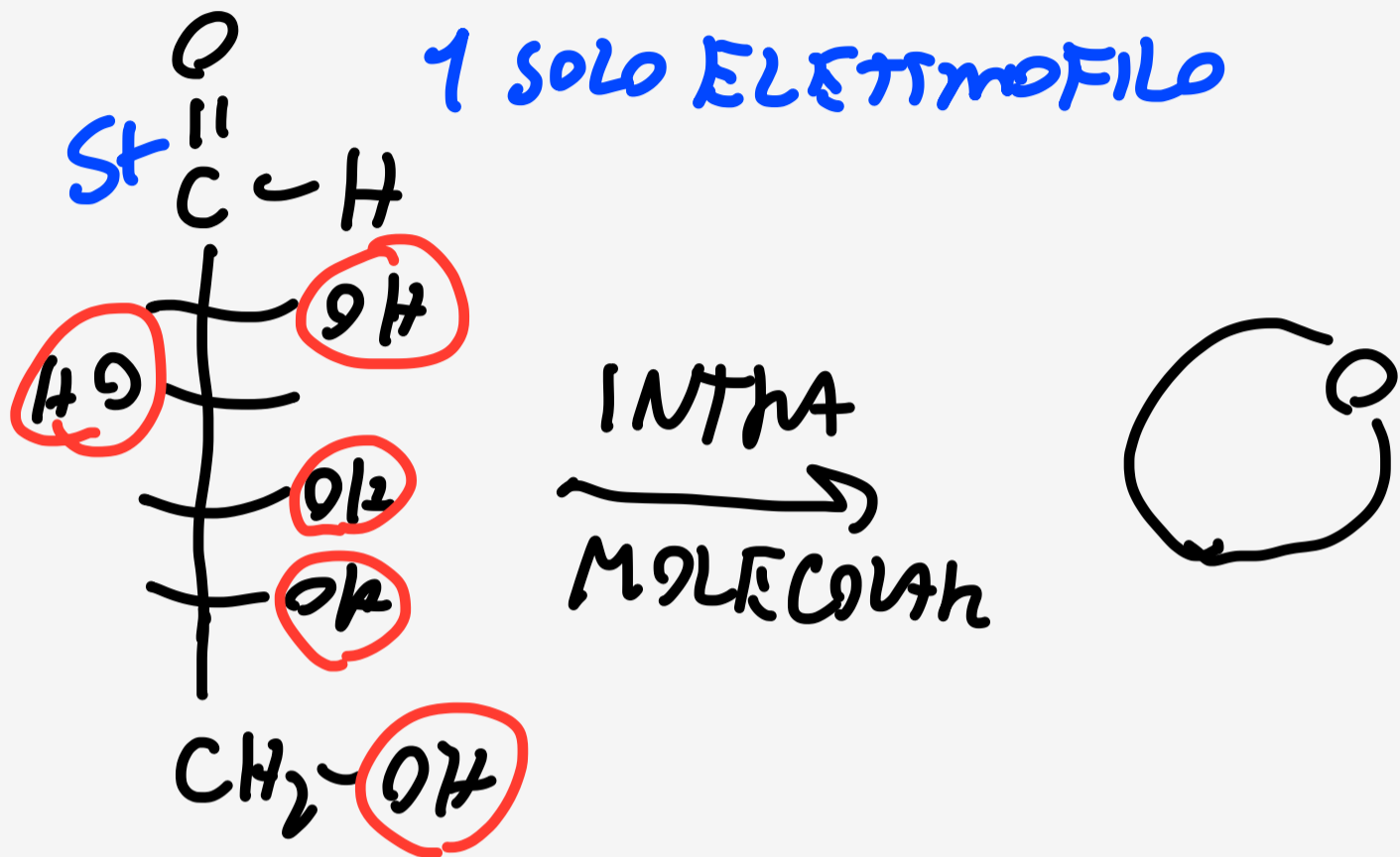
L



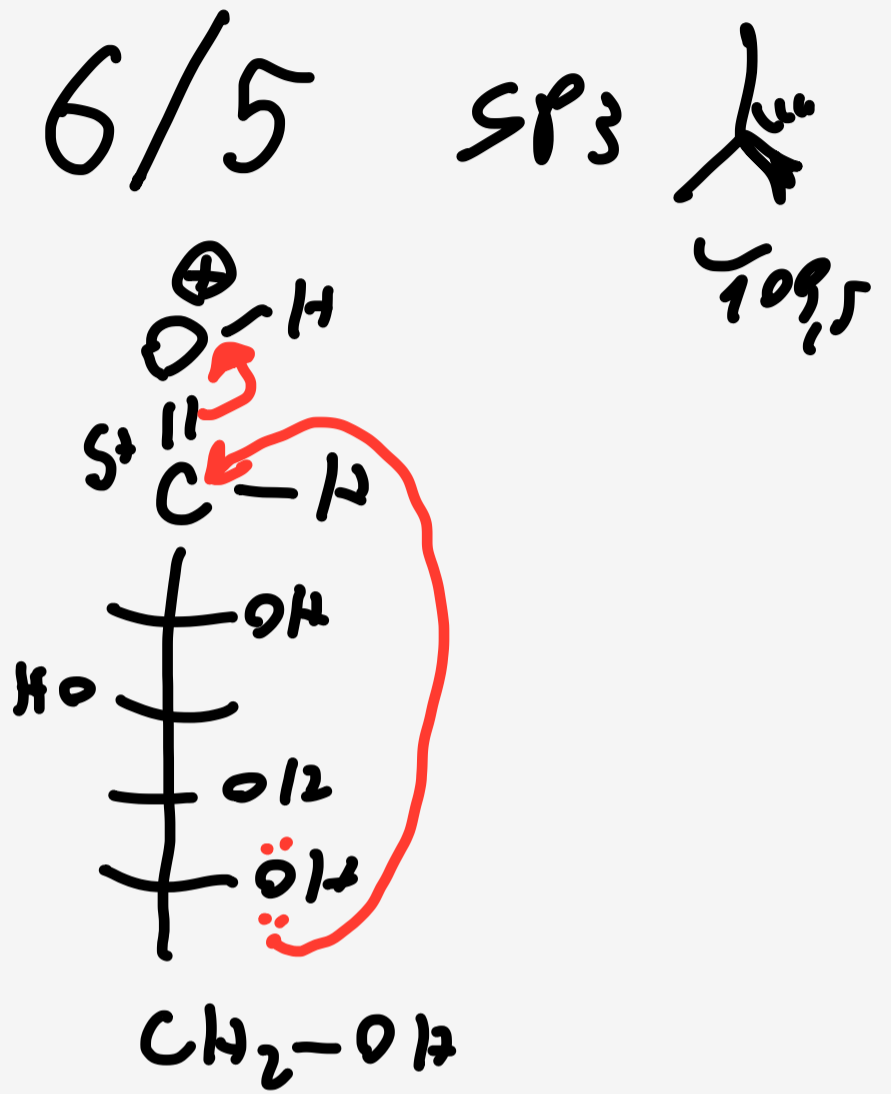
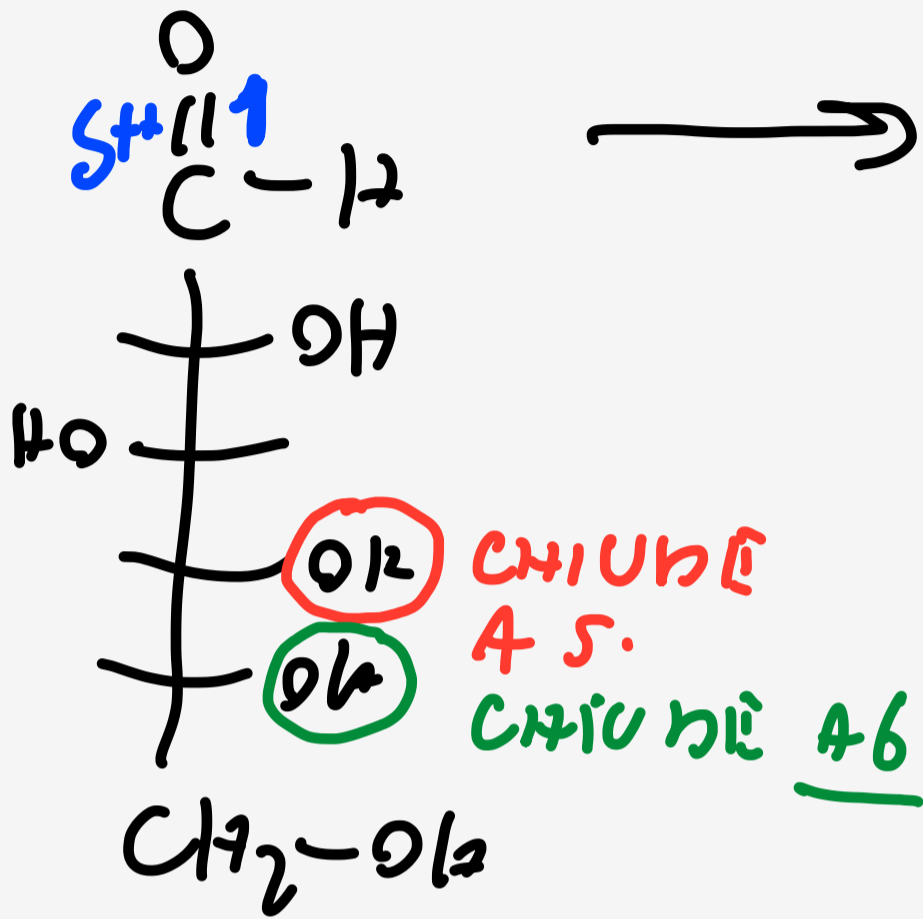
DIASTEREOMER

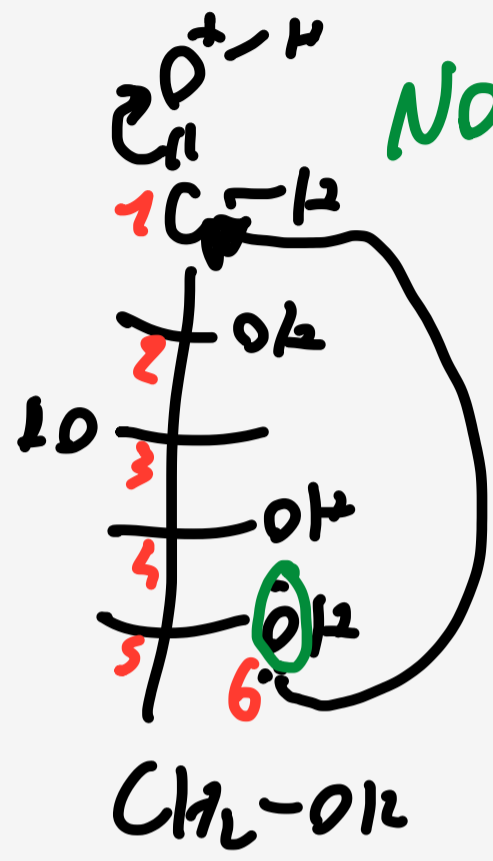


EMIAETALE

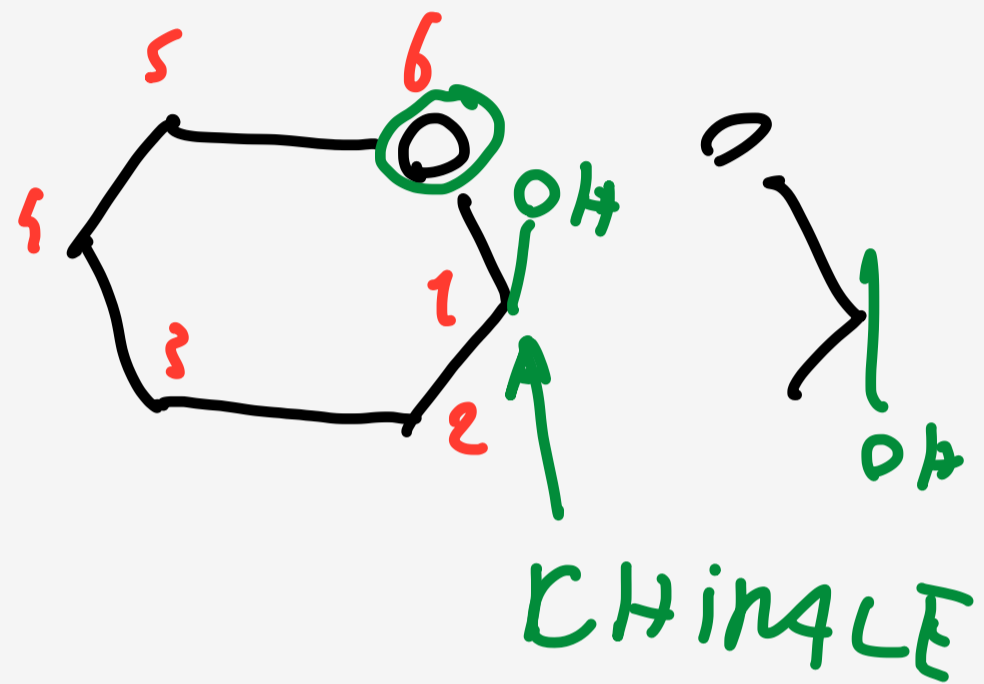


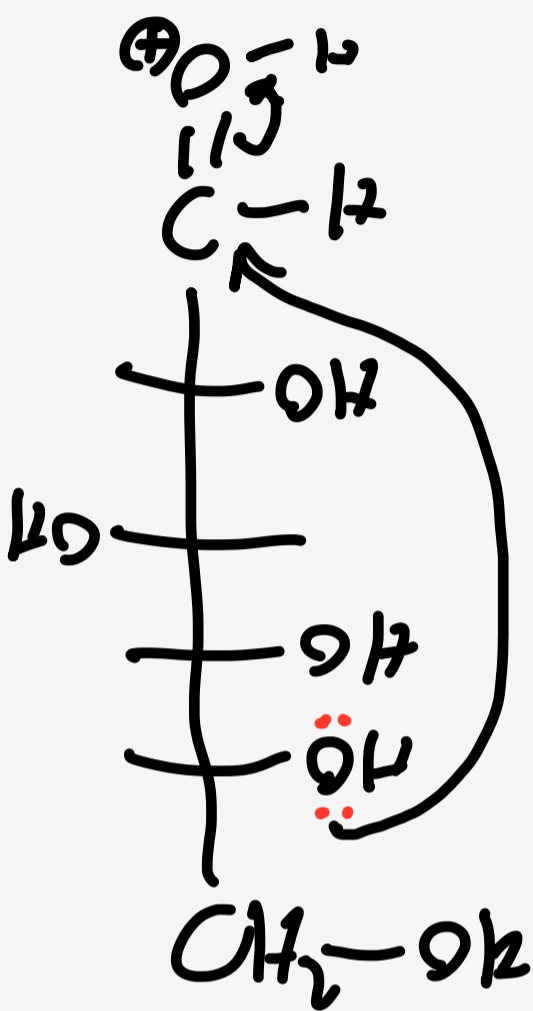
5 POSSIBILI NUCLEOFILI



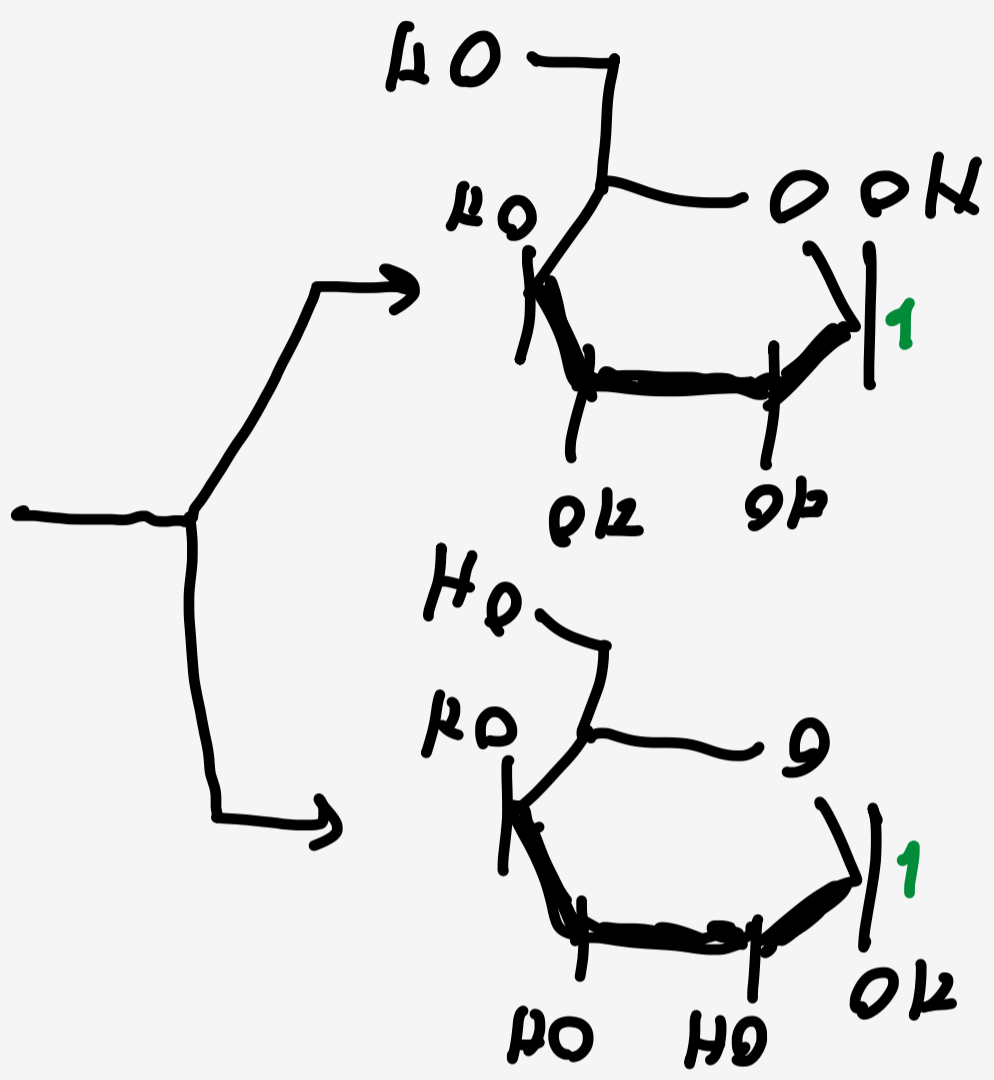


NON CHIRALE





FISCHER

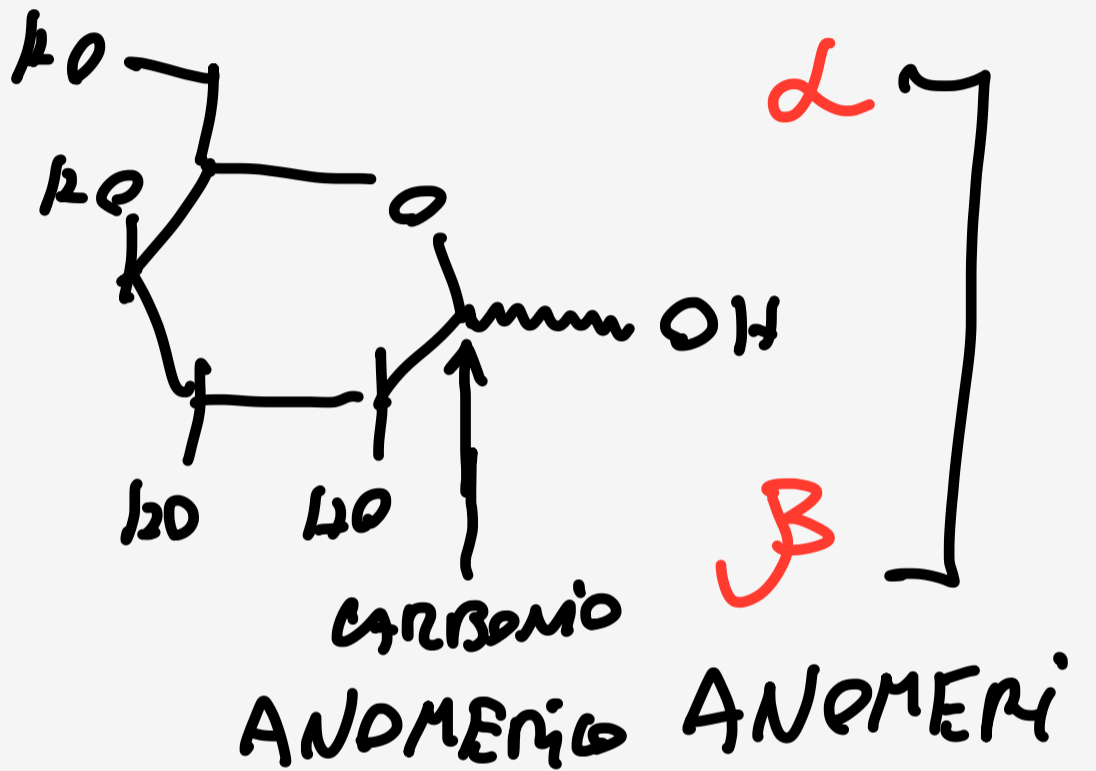
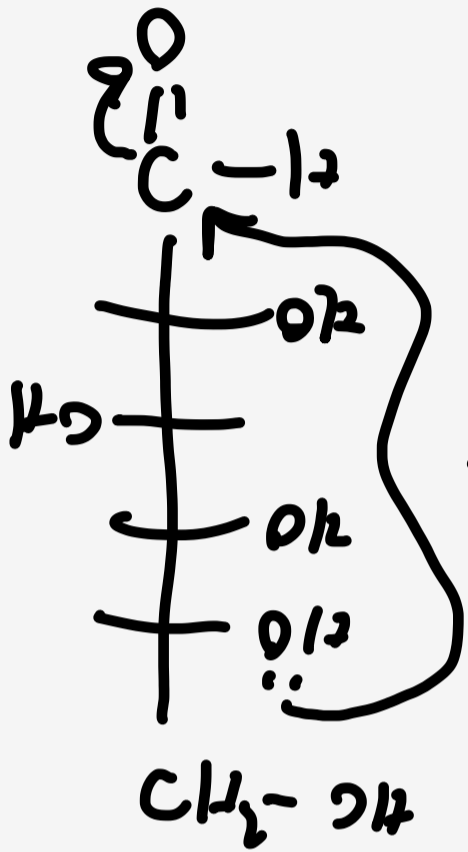


HAWORTH

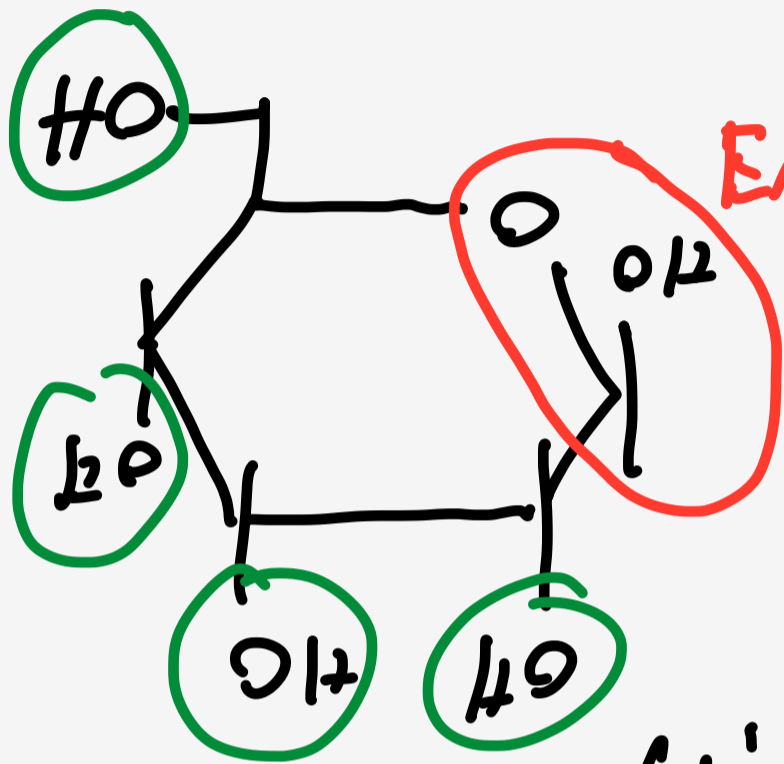
β

α

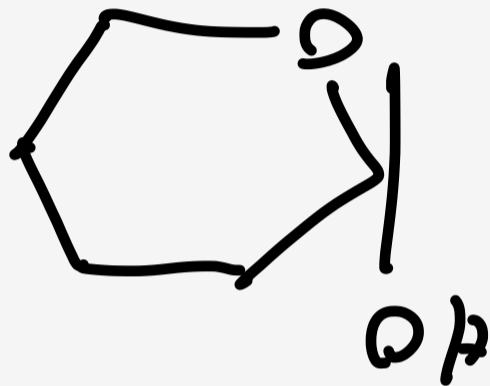
EMI ACETALI CÍCLICO



VARIAZIONE [α] = MUTAROTAZIONE

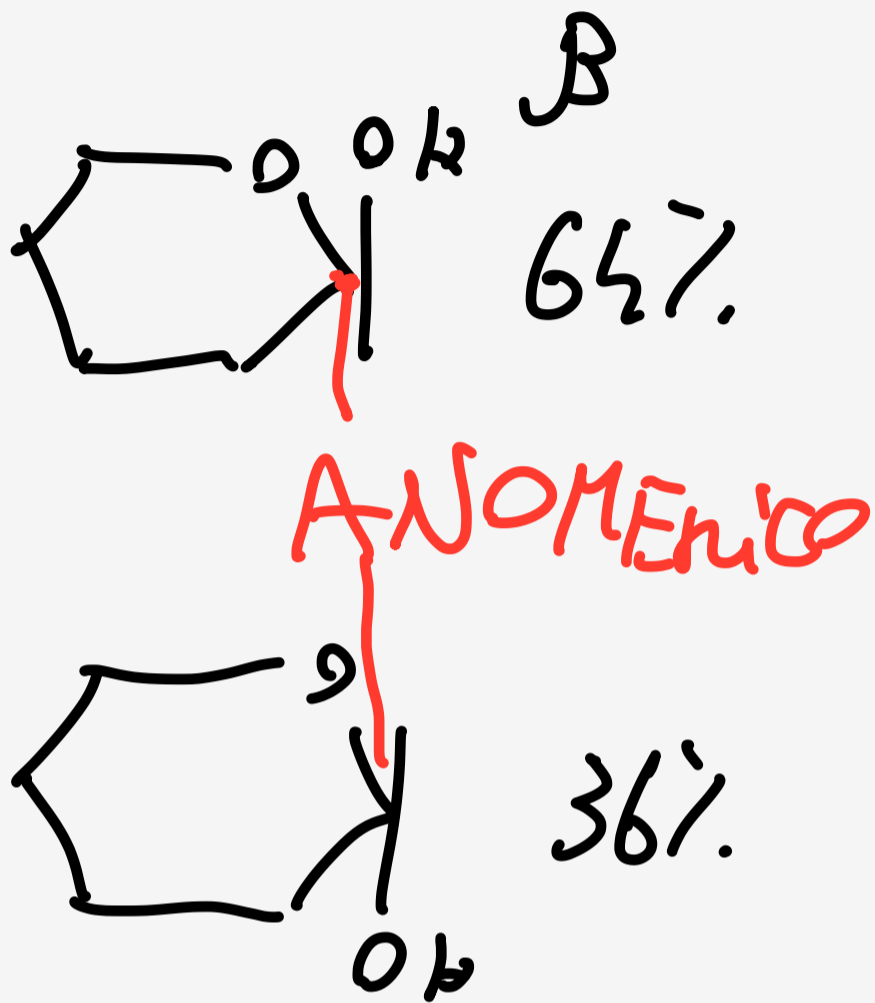
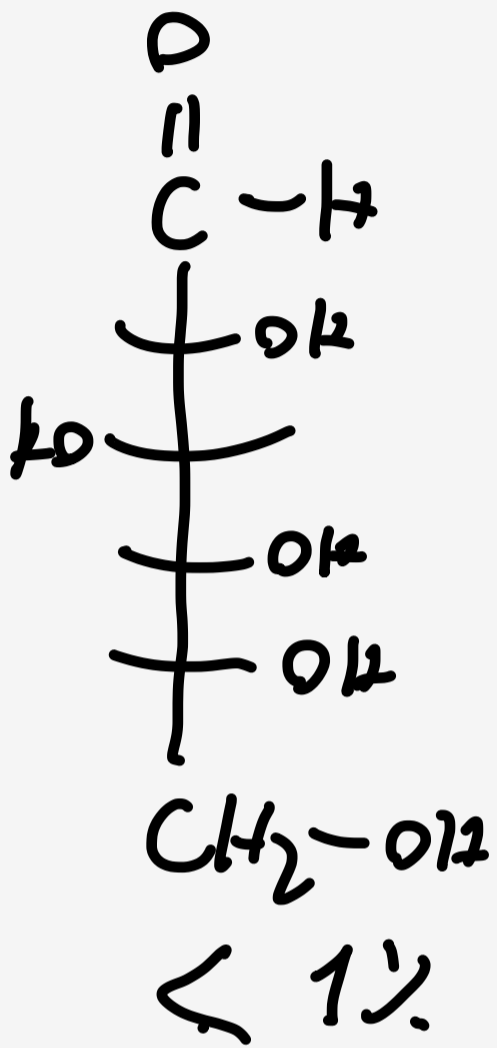


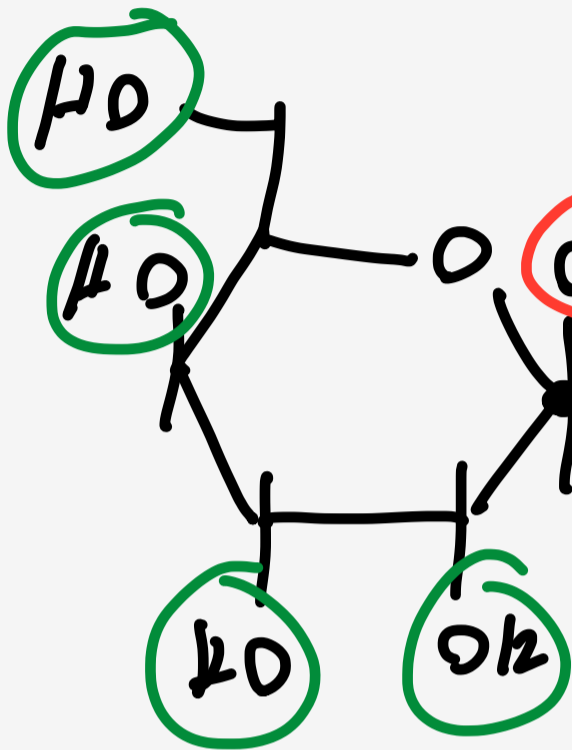
EMI ACETALE



ALCOOLI β 64%

α 36%

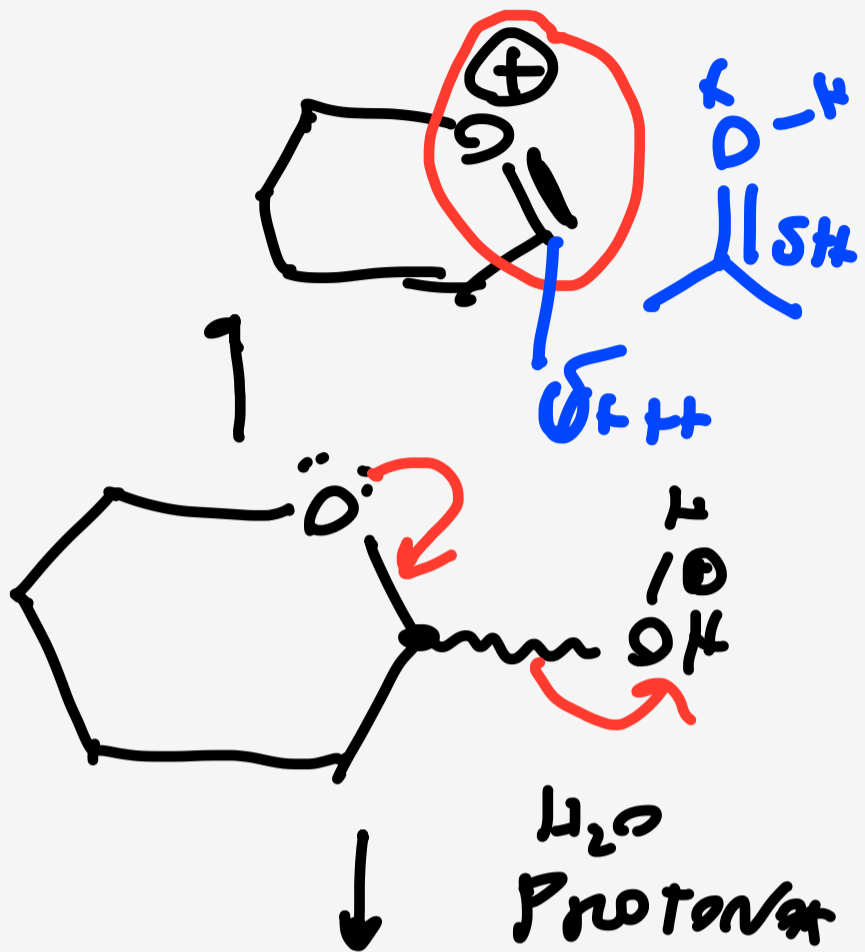




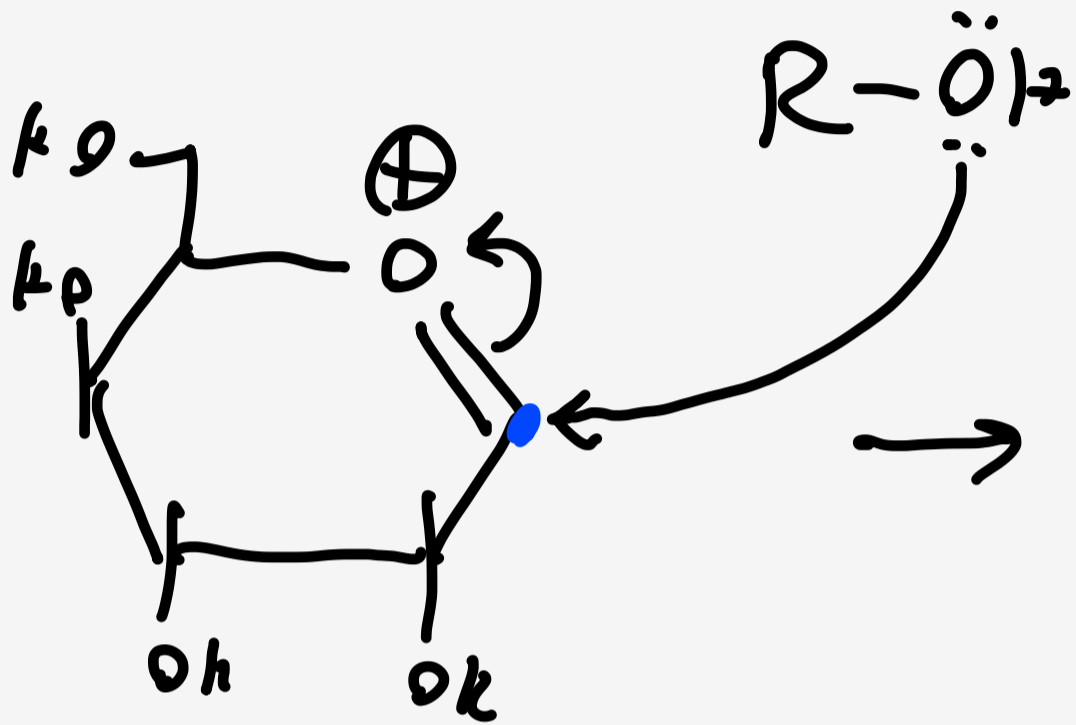
NON È
UN ALCOLO

È MI
ACETALE

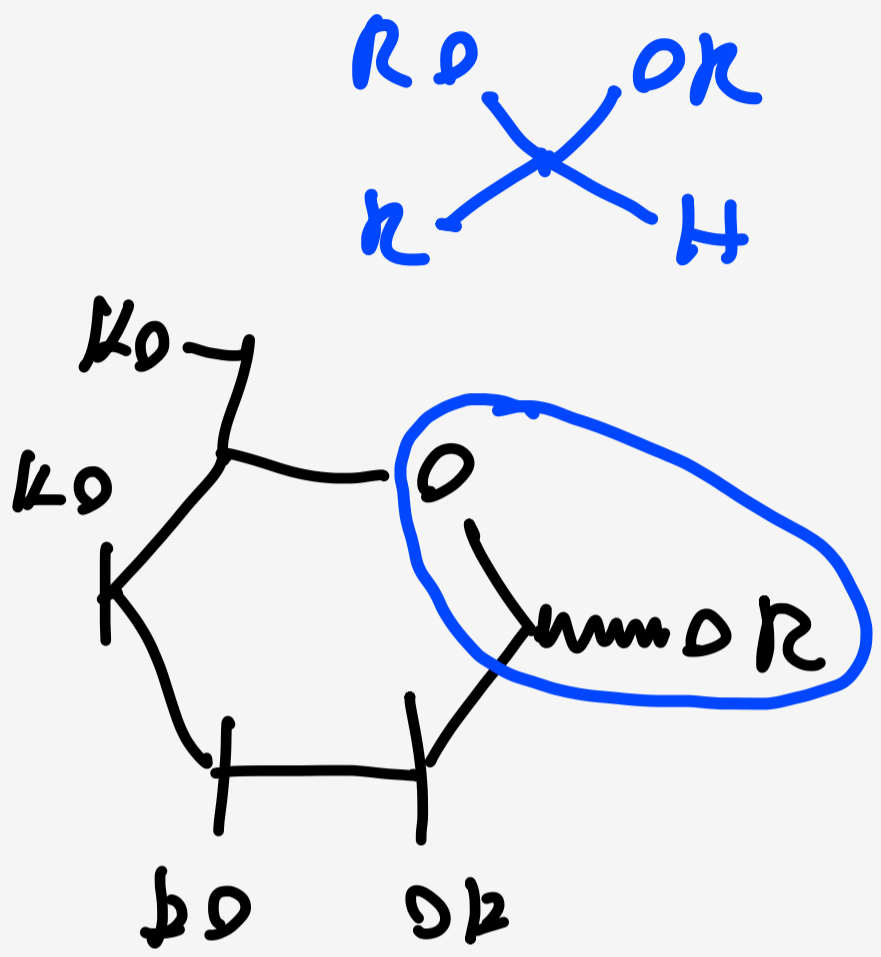
4 GRUPPI OSSIFILICI
ALCOLICI



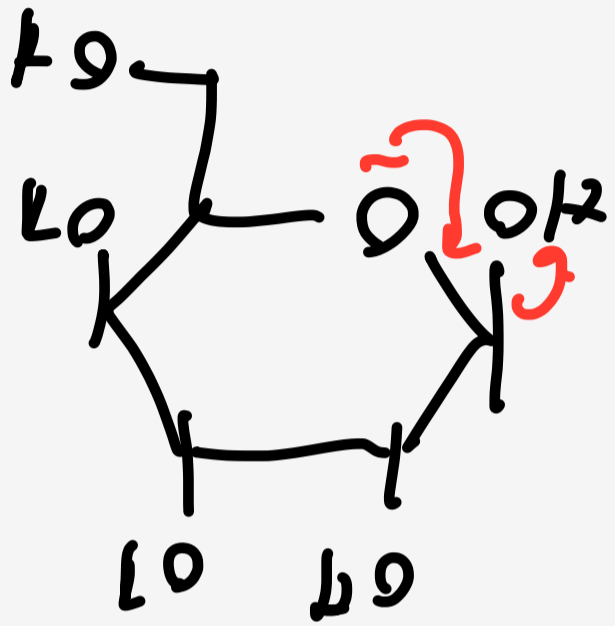
BUON
GRUPPO
USCENTE



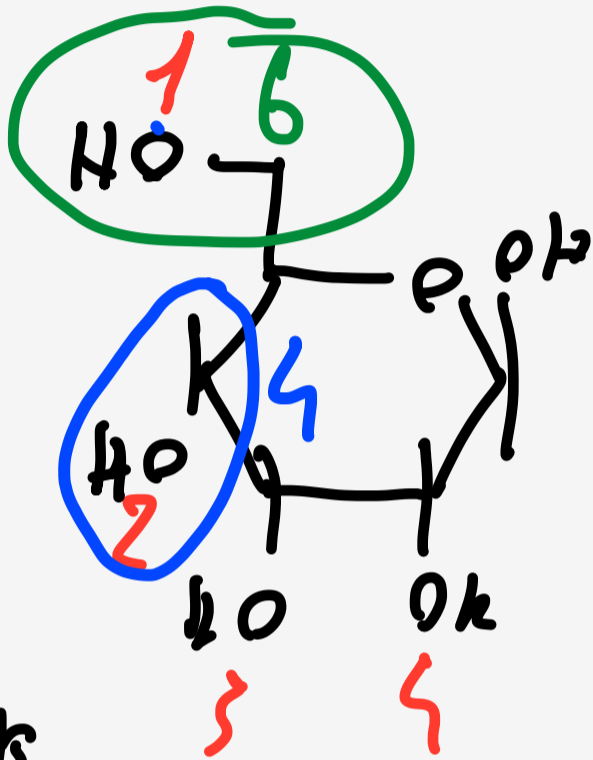
EMI ACETALE



ACETALE

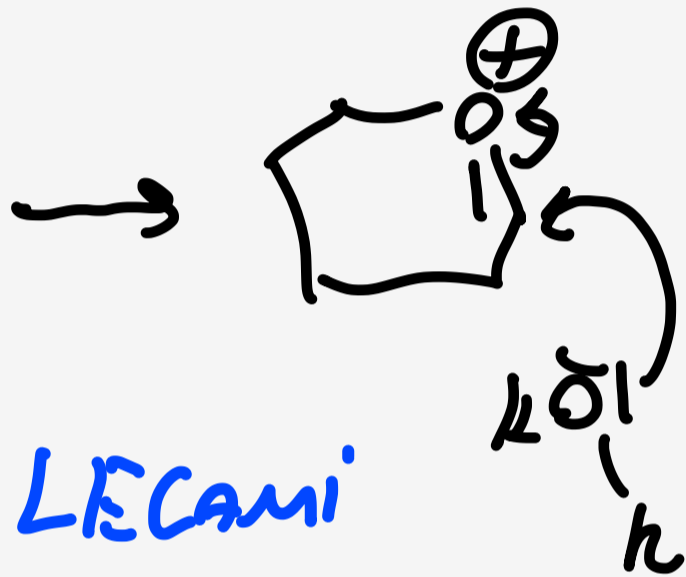


MONOSACCHARID



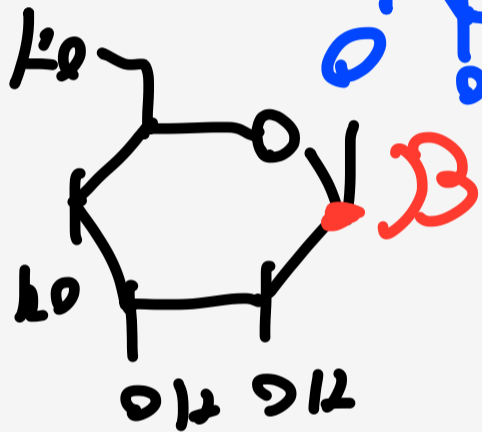
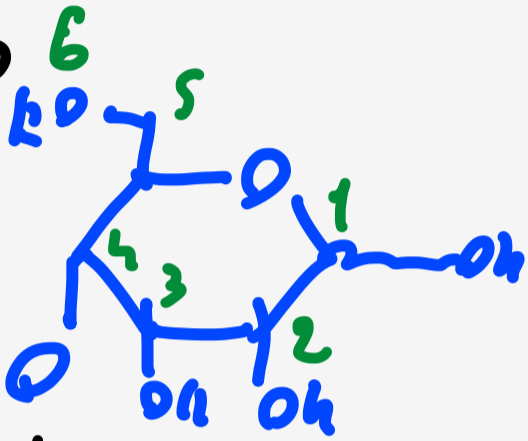
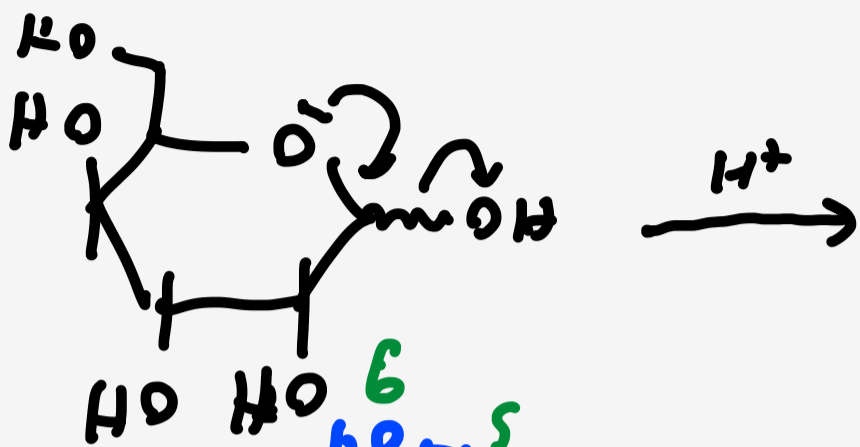
LECAMI.

$\alpha(1\beta) - 1,6$

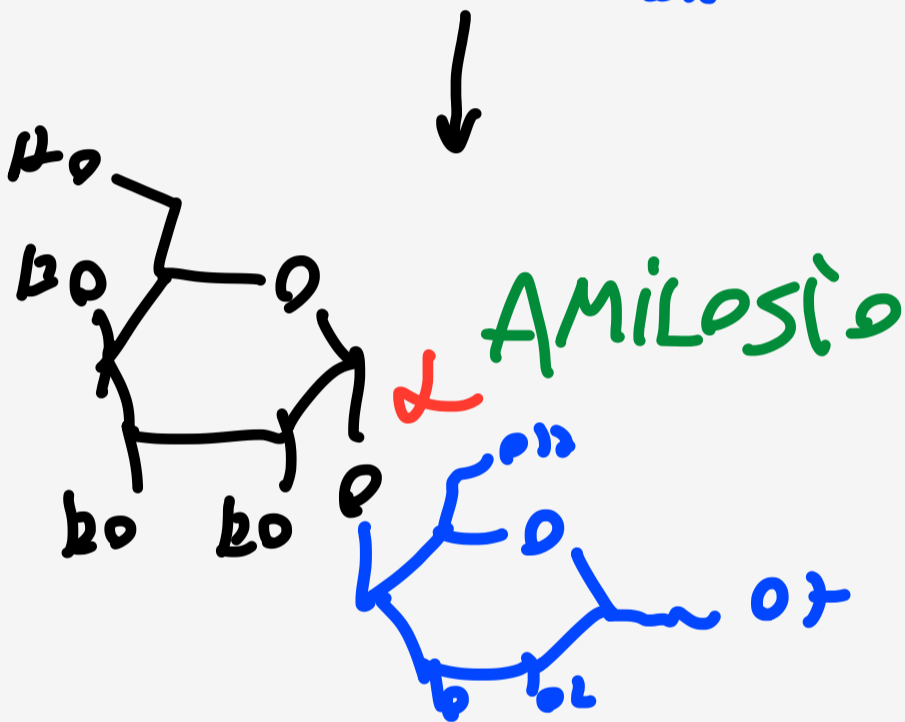
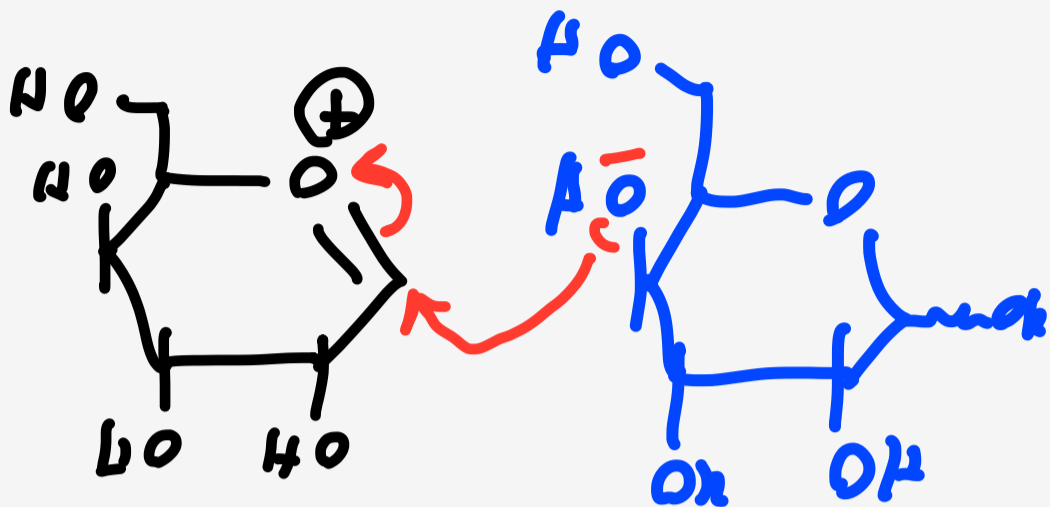


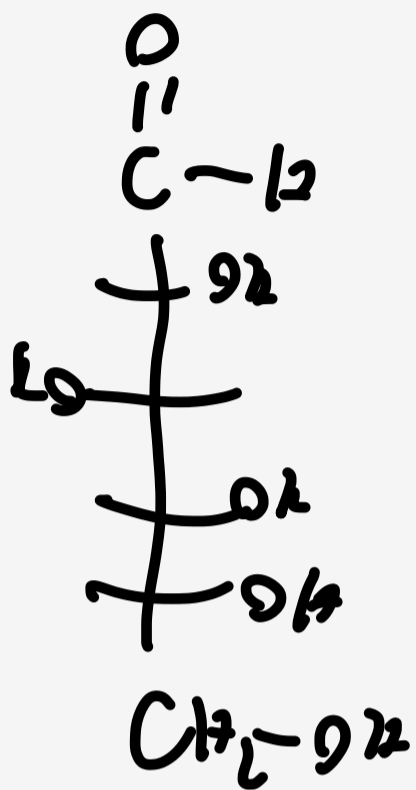
LECAMI

$\alpha(1\beta) - 1,4$

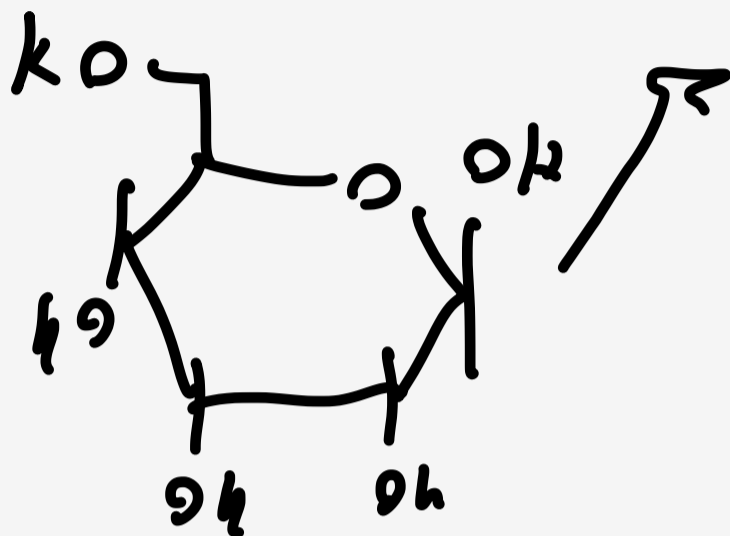


CELLULOSA





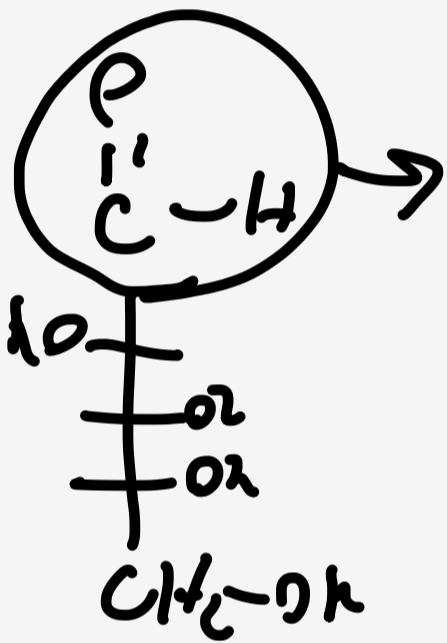
D-GLUCOSE



β -D-GLUCOSE

β -1,4

ZUCCHERI RIDUCENTI



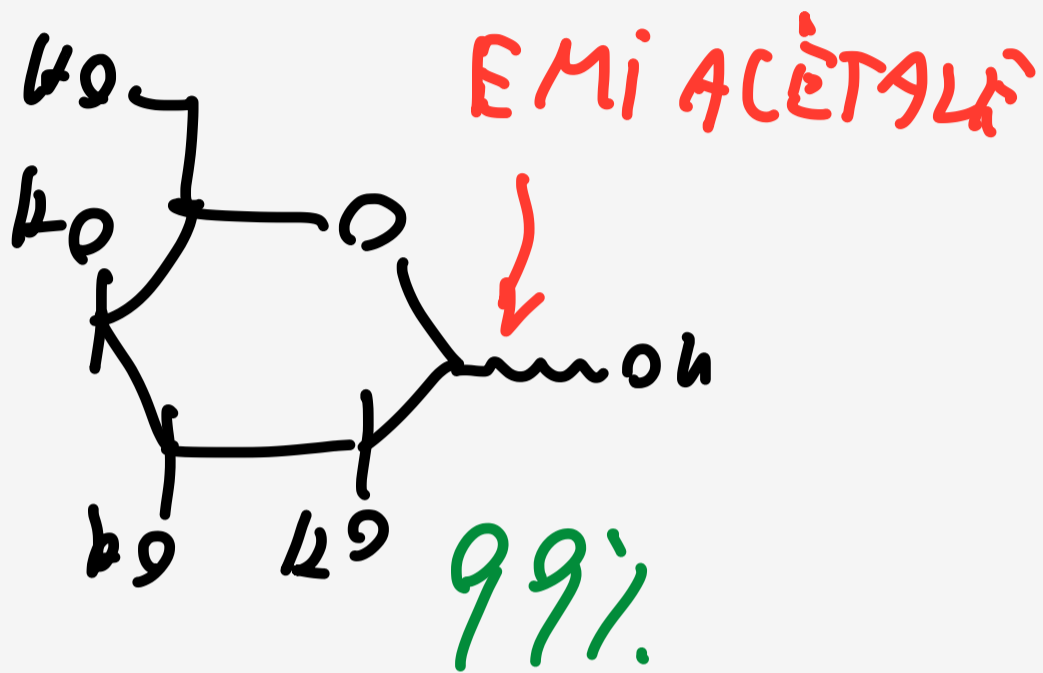
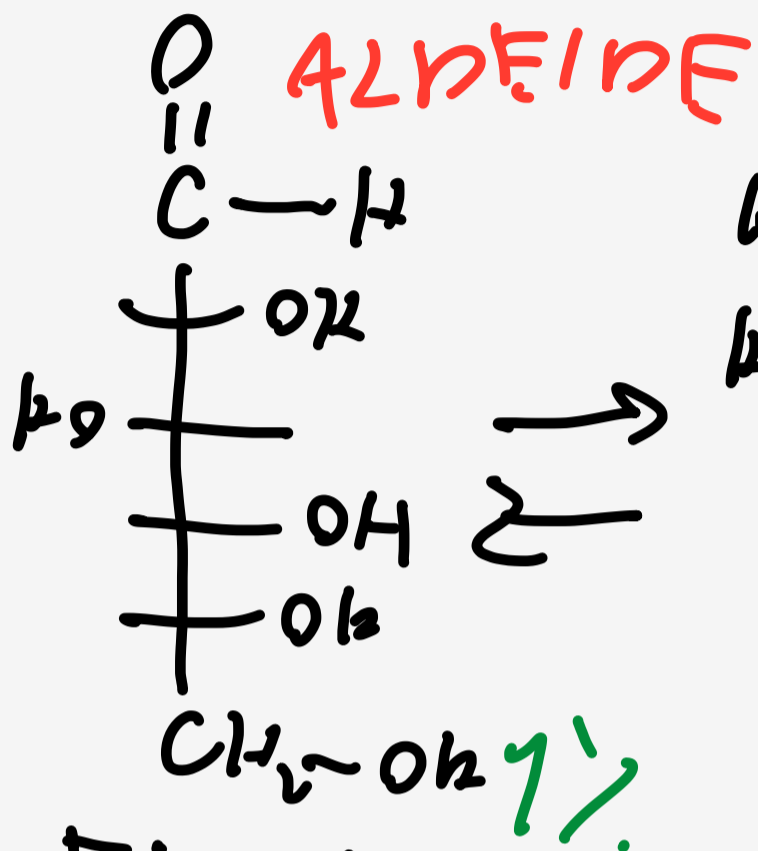
RIDUCENTE

→
OSSIDANTE

R-COOH

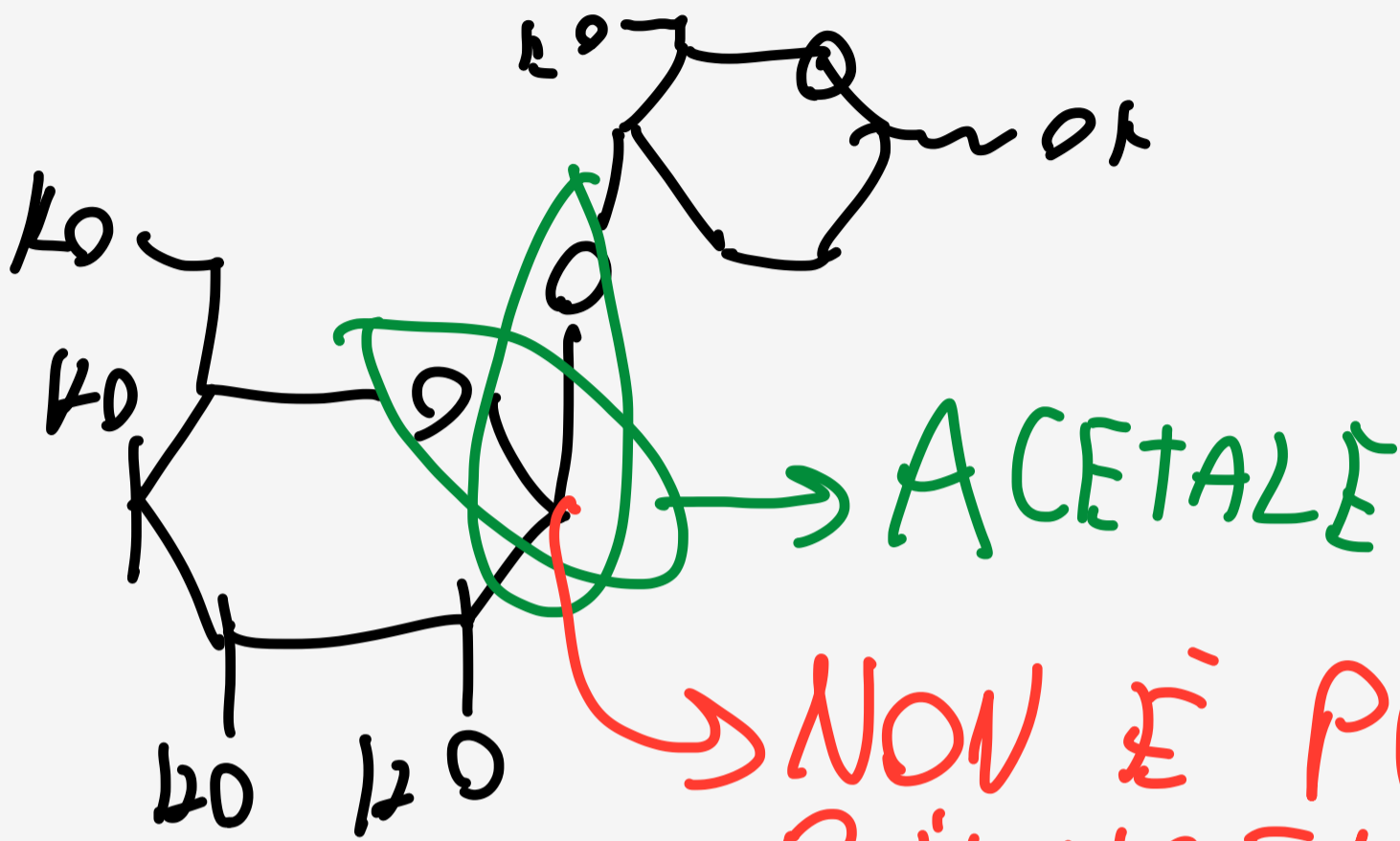
REATTIVI DI TOLLENS.

NaOH e Cu_2O

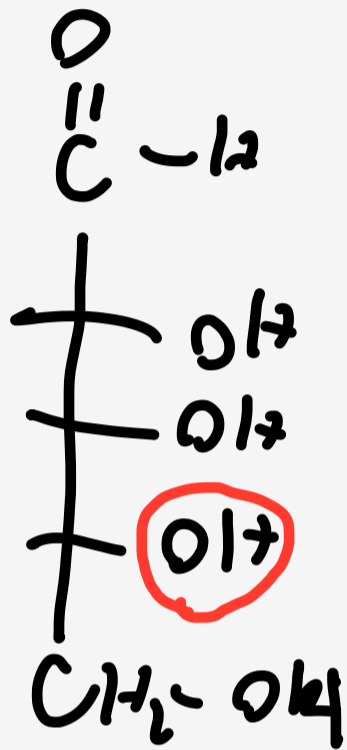


FISCHER

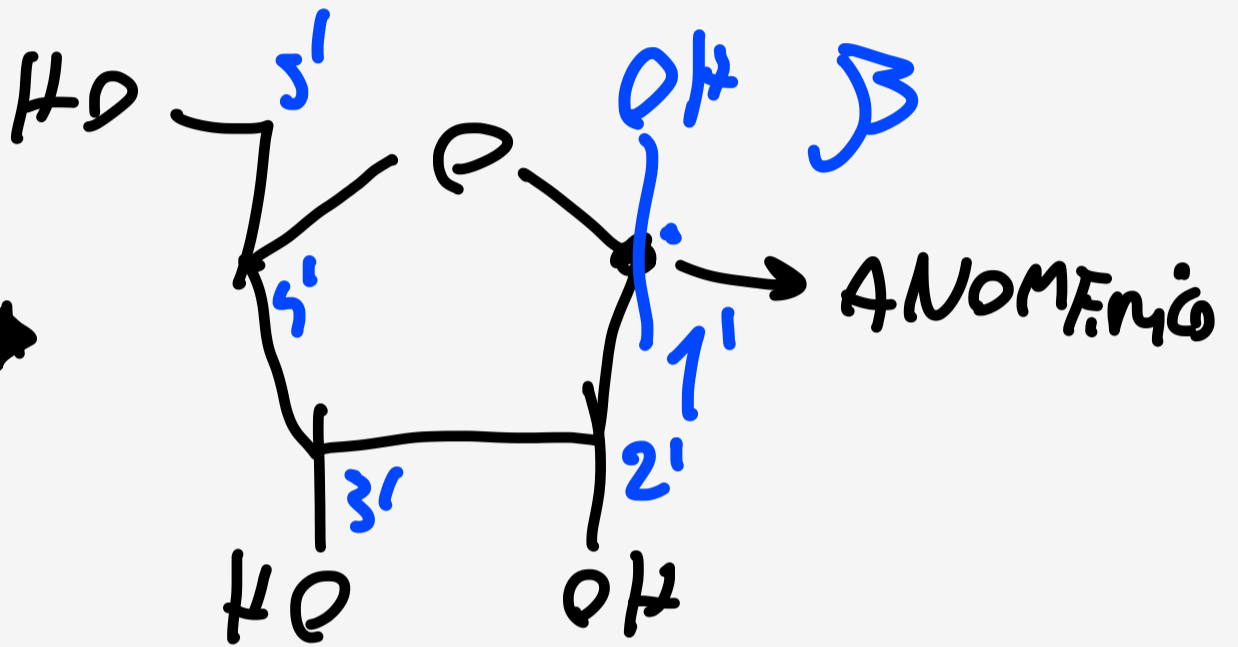
SOLO CON ALDEIDE
ZUCCHERO RIDUCENTE



D-RIBOSIO



ALDO PENTOSO

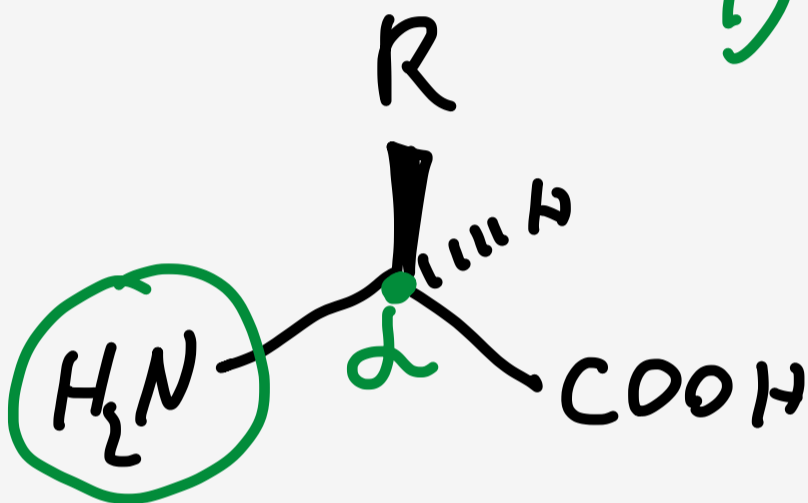


TETRAIDRO FURANOSI

AMMINOACIDI

MONOMERI DELLE PROTEINE

1) HANNO 1 CENTRO
CHIRALE
 α È CHIRALE



α -AMMINOACIDI

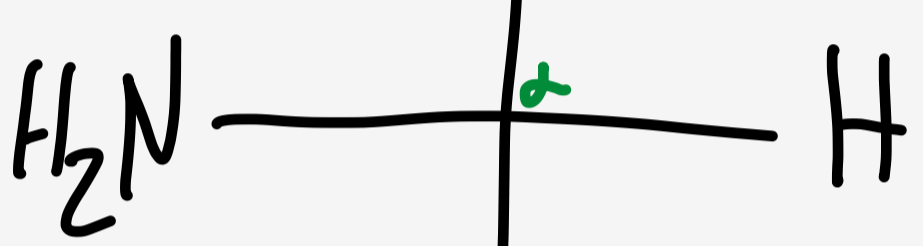
FISCHER



GLICINA

R = H

COOH



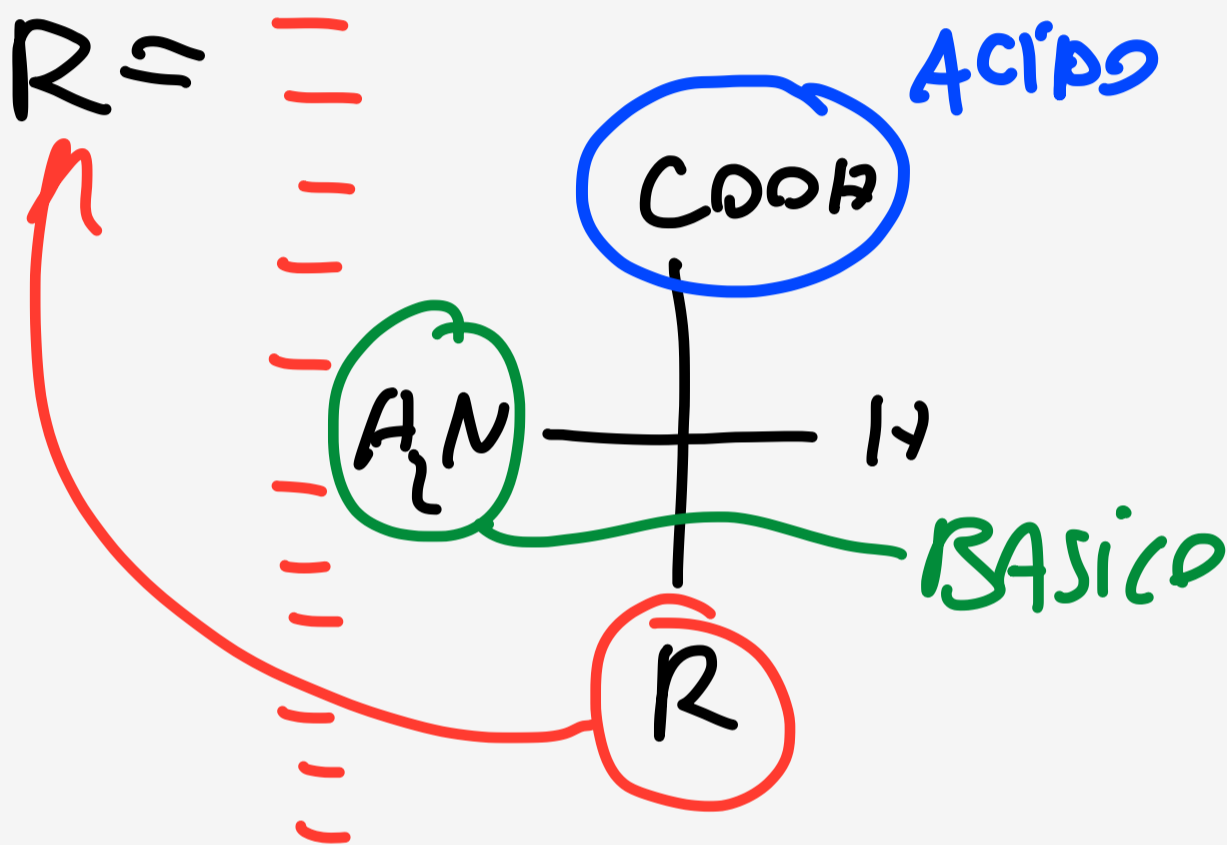
CISTEINA

R = CH₂-SH

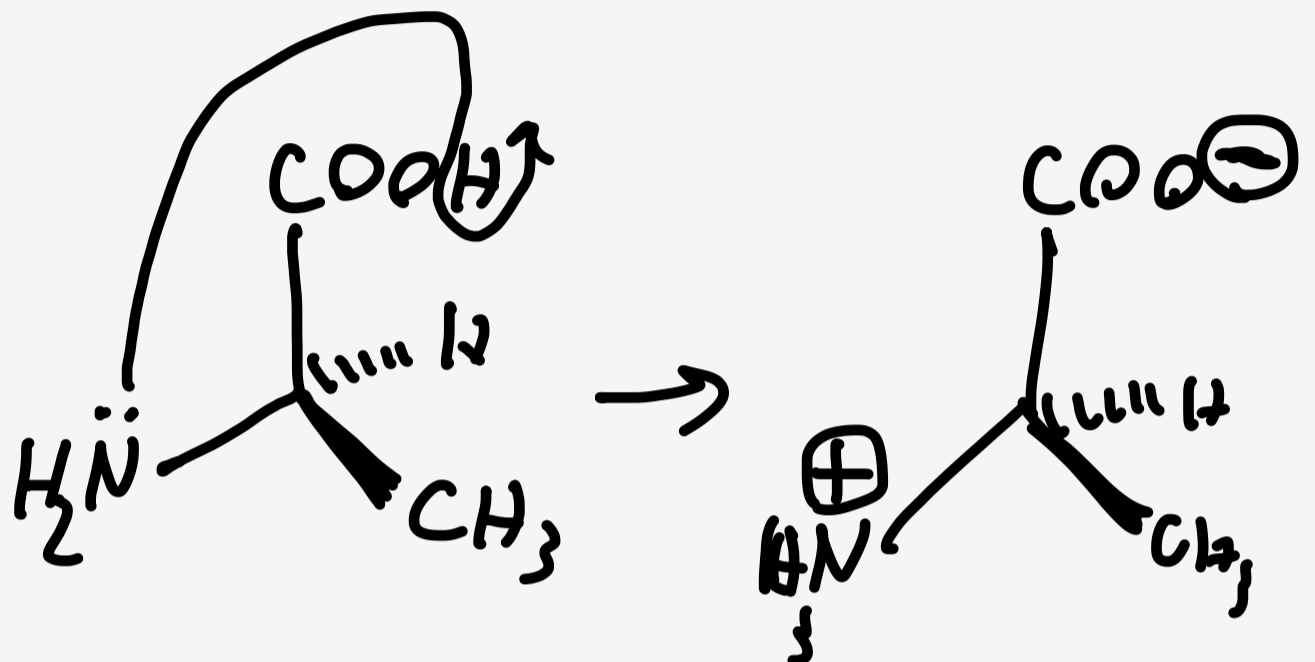
L-AMMINOACIDI

20 AA NATURALI

(L)

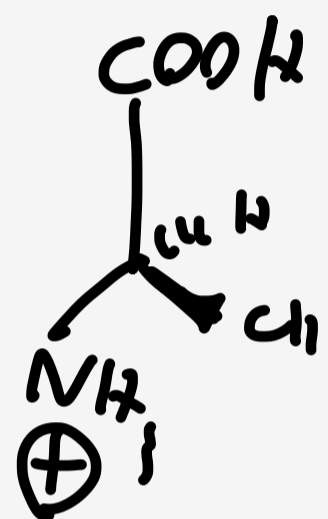


PROPRIETÀ
DIPENDONO
DAL pH

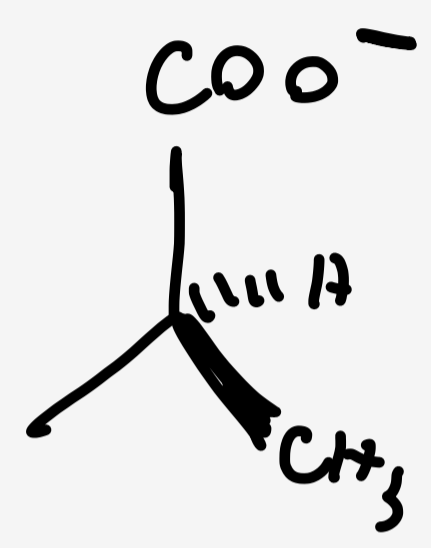


D-ALANIN

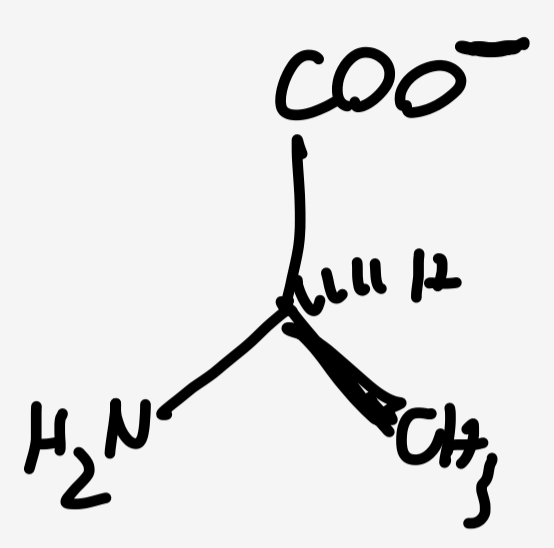
pH = 7
ZWITTERION



ACID
HCl + H₃N⁺



BASE
NaOH



pH = 2
CATION

pH = 7
ZWITTERION

pH = 11
ANION

