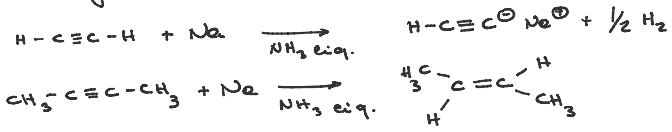
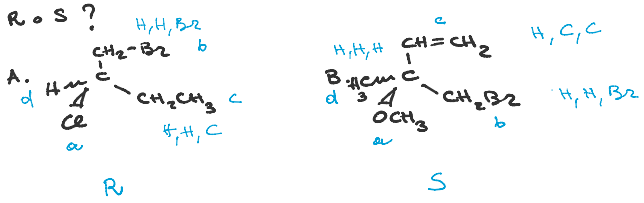
① Si completino

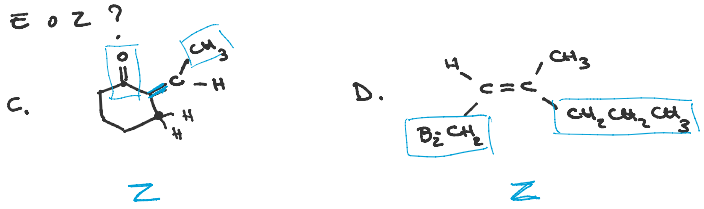


② R o S ?



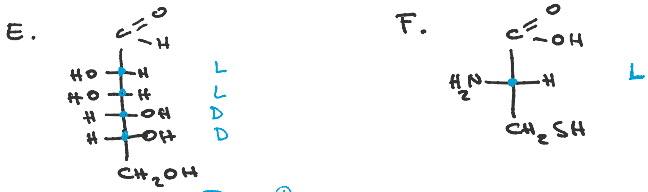
R S

E o Z ?

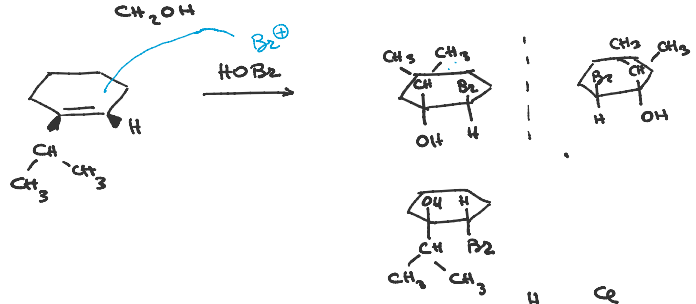


Z Z

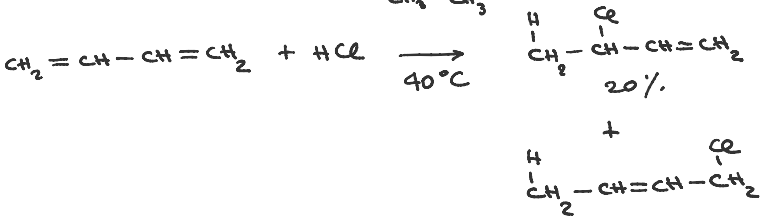
L o D ?



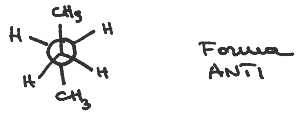
③



④

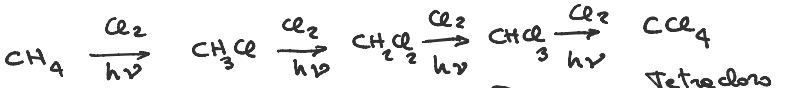


⑤ Formule di Newman per lo stereoisomero conformazionale più stabile del n-butano



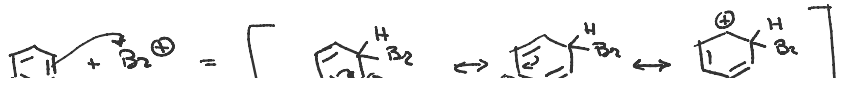
Forma ANTI

⑥ Completare e scrivere nome IUPAC e comune

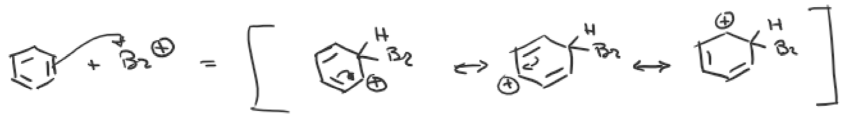


IUPAC	Cloro metano	Diclorometano	Triclorometano	Tetraclorometano
COMUNE	Cloruro di metile	Cloruro di metilene	Cloroformio	Tetracloruro di C

⑦ Intermedio di Wheland nella bromurazione

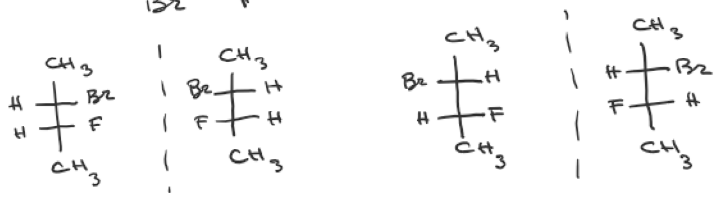


(7) Intermedio di

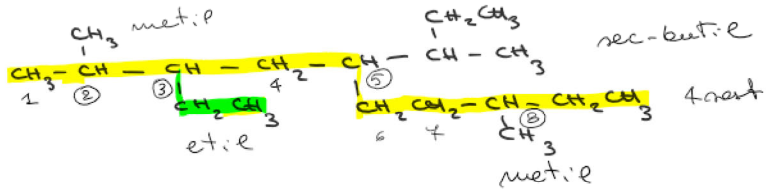


(8) Stereoisomeri configurazionali del 2-bromo-3-fluorobutano in formula di Fischer

$CH_3-\overset{*}{C}H(Br)-\overset{*}{C}H(F)-CH_3$ $\quad 2^2 = 4$



(9)



decano

2,8 - dimetil - 3 - etil - 5 - sec - butil decano

5 - s-butil - 3 - etil - 2,8 - dimetil decano

(1-metil propil)

3 - etil - 2,8 - dimetil - 5 - (1-metilpropil) decano

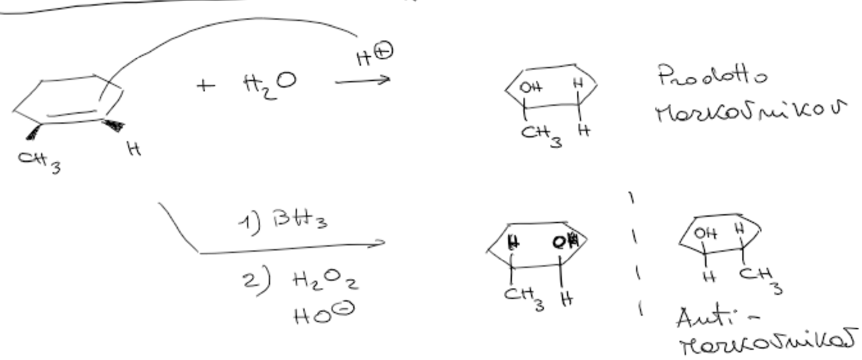
(10) Tensione angolare : divario tra angolo effettivo e angolo tetraedrico

Tensione torsionale : dovute a eclissamento.

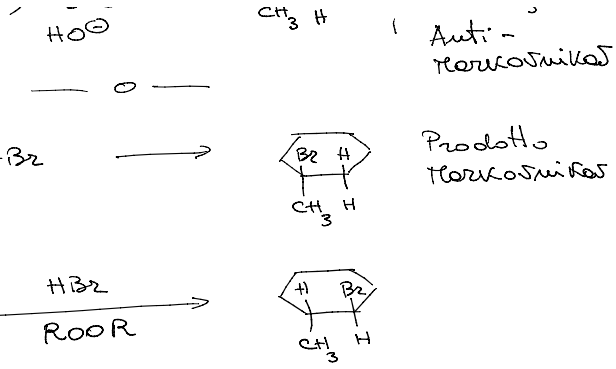
DOMANDE APERTE

(1) Si descrivano in dettaglio:
1. Polimerizzazione del propilene con meccanismo radicalico
2. Polimerizzazioni a crescita di catena con meccanismo cationico e anionico
3. Polimeri stereoregolari

(2) Si descrivano i meccanismi che permettono di addizionare H_2O al 1-metil-1-cicloesene con orientamento opposto.

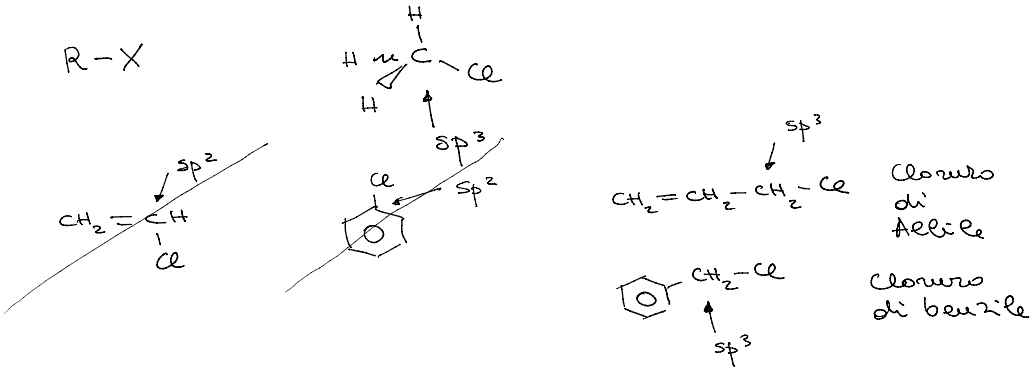


— o —



ALOGENURI ALCHILICI

R – X

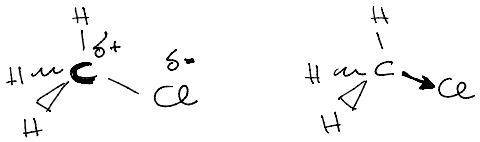


Nomenclature

CH_3-Cl	IUPAC	Cloro metano
	COMUNE	Cloruro di metile
$CH_3-CH(CH_3)-Cl$		2 - Cloro propano
		Cloruro di isopropile
$CH_3-CH_2-CH_2-Cl$		1 - Cloro propano
		Cloruro di propile

Utilizzi

→ propellenti
→ refrigeranti
→ anestetici
→ Solventi per molecole organiche
→ Intermedi in sintesi complesse



SOSTITUZIONI NUCLEOFILE ALCHILICHE

- S_N2 — SOSTITUZIONE NUCLEOFILA BIMOLECOLARE MONOSTADIO
- S_N1 — SOST. NUCL. MONOMOLECOLARE BISTADIO

$R-Cl + Nu^{\ominus} \rightarrow R-Nu + Cl^{\ominus}$

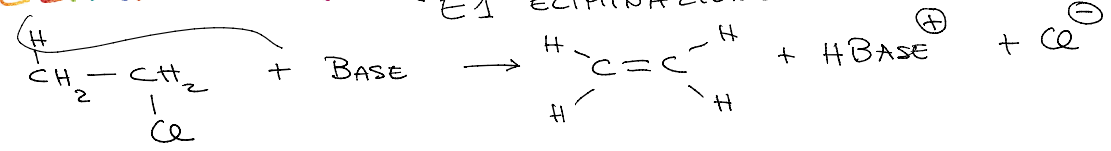
Substrato · Nucleofilo · Prodotto · Gruppo uscente

ELIMINAZIONI

- E2 — ELIMINAZIONE BIMOLECOLARE MONOSTADIO
- E1 — ELIMINAZIONE MONOMOLECOLARE BISTADIO

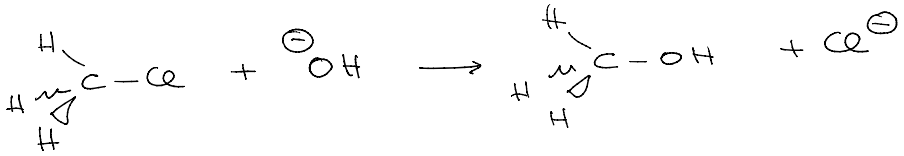
ELIMINAZIONI

- E2
- E1 ELIMINAZIONE MONOMOLECOLARE BISTADIO



MOLECOLARITÀ Numero di reagenti che partecipano allo stato di transizione (#) dello stadio determinante la cinetica

S_N2



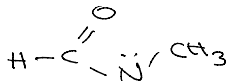
EVIDENZE SPERIMENTALI

1. Substrato preferito: Alogenuro alchilico metilico o primario poco ingombrato stericamente.
2. Legge cinetica del 2° ordine complessivo.

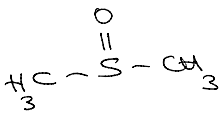
$$v = K[R\text{-}X]^1[Nu^{\ominus}]^1 \qquad 1+1=2$$

3. Solvente preferito: Solvente polare aprotico (non forma leg. a H)

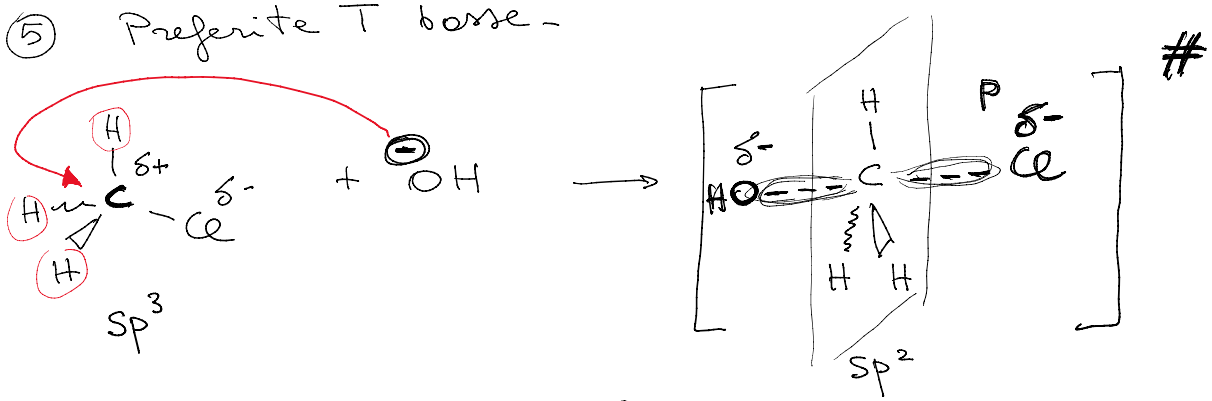
DMF Dimetilformammide



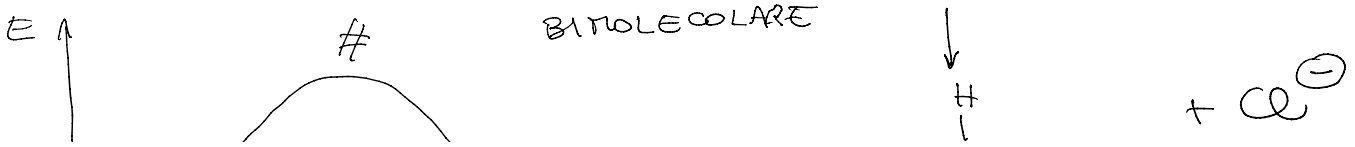
DMSO Dimetilsolfoxido

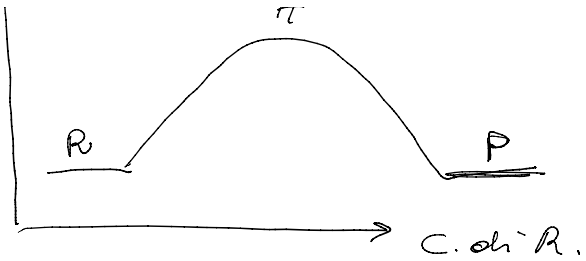


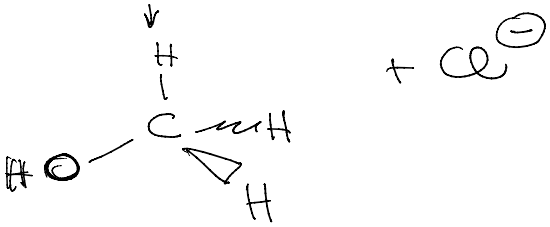
4. Stereochimica: la reazione avviene con perfetta INVERSIONE DI CONFIGURAZIONE
5. Preferite T basse.

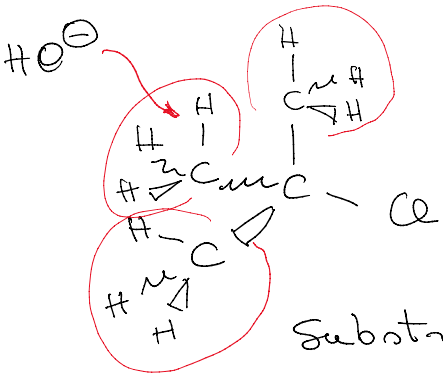


MONOSTADIO BIMOLECOLARE



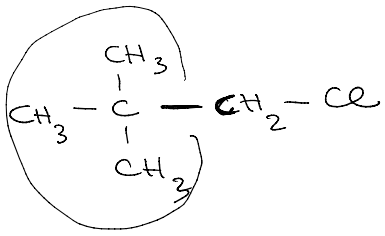




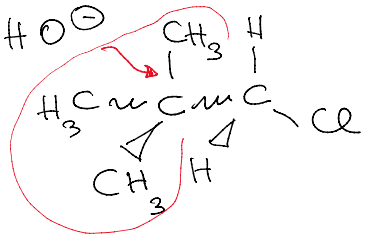


S_N2

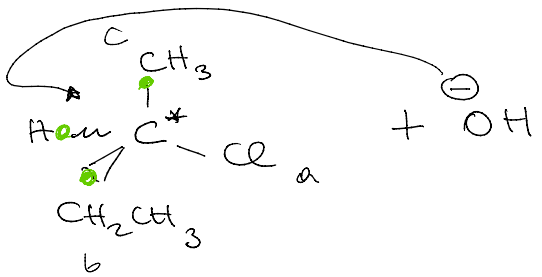
Substrato ~~terziario~~



Reagisce in una S_N2 100.000 volte più lentamente rispetto CH_3-Cl

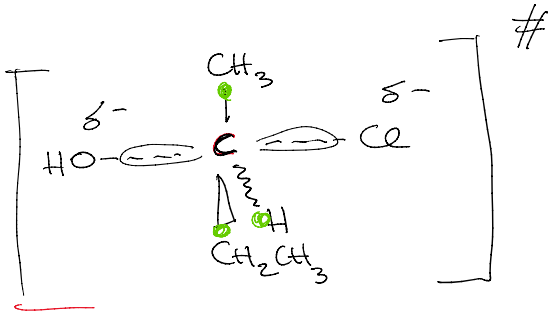


Stereochimica

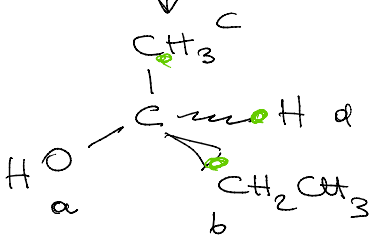


Sx

R



Sullo stesso piano



Dx

S

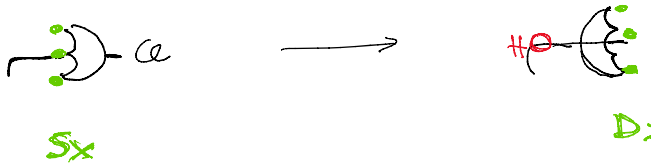
$R \rightarrow S$

$S \rightarrow R$

MOVIMENTO Sx → COMPLANARI → Dx

DI WALDEN

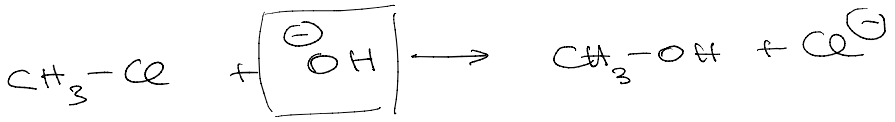
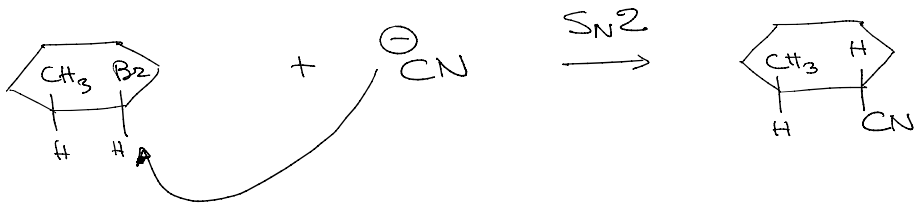
DI WALDEN S Dx



Sx Dx

I solventi polari protici (H_2O; ROH) solvatano bene i cationi (ione-dipolo) e solvatano bene gli anioni (es. a H)

I Solventi polari aprotici (DMF, DMSO) solvatano bene i cationi (ione-dipolo)



Esempio