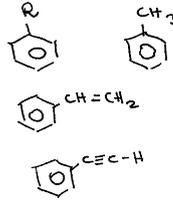
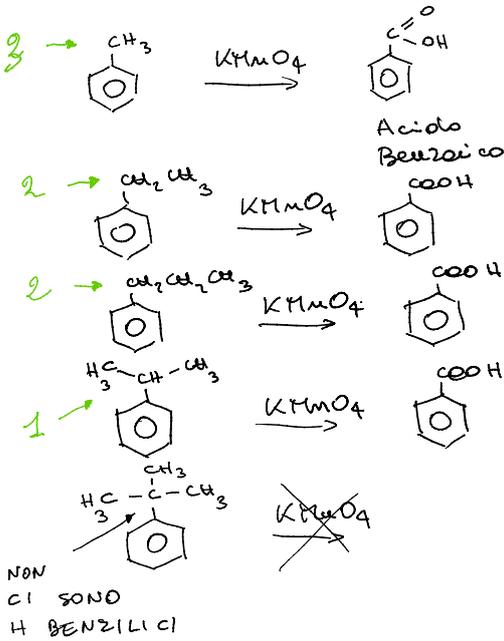


ARENI

- ALCHIL BENZENI
- ALCHENIL BENZENI
- ALCHINIL BENZENI



OSSIDAZIONE DEGLI ALCHIL BENZENI



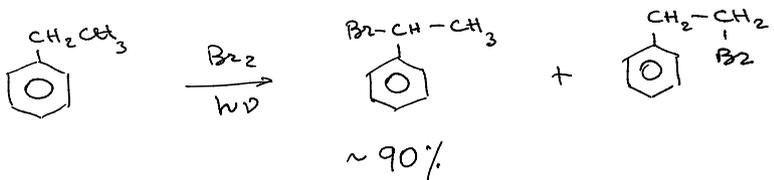
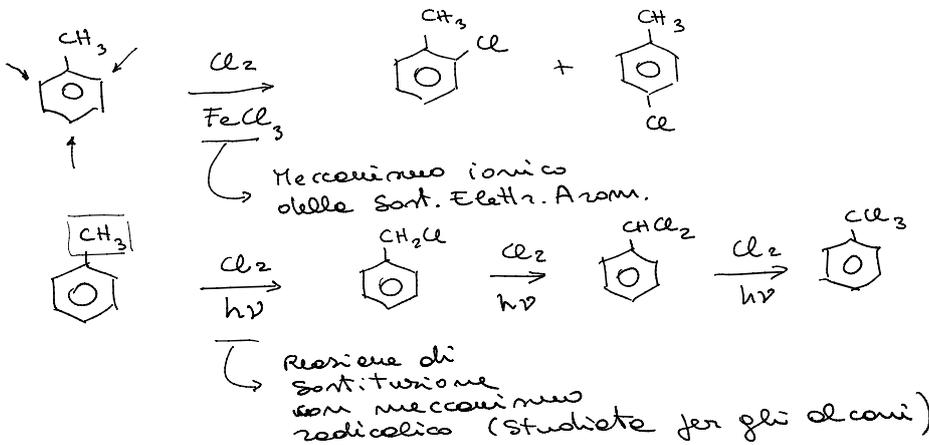
L'ossidazione in chimica organica si associa ad un aumento del contenuto di ossigeno nel prodotto oppure ad un decremento nel contenuto di idrogeno.

Per la riduzione vale il contrario.

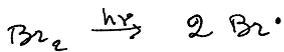
Perché queste reazioni abbia luogo serve almeno 1 H benzilico



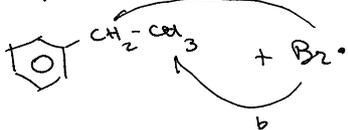
ALOGENAZIONE DEGLI ALCHIL BENZENI (via radicalica)



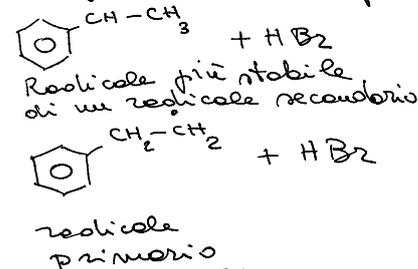
Iminazione

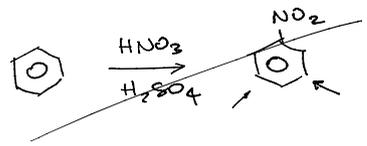
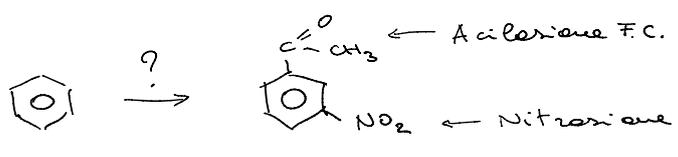
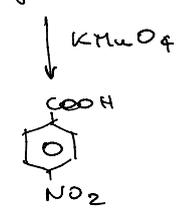
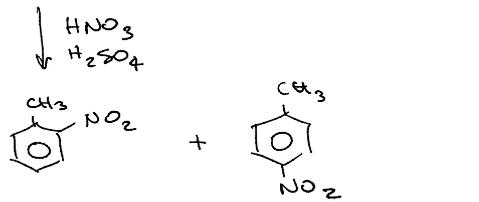
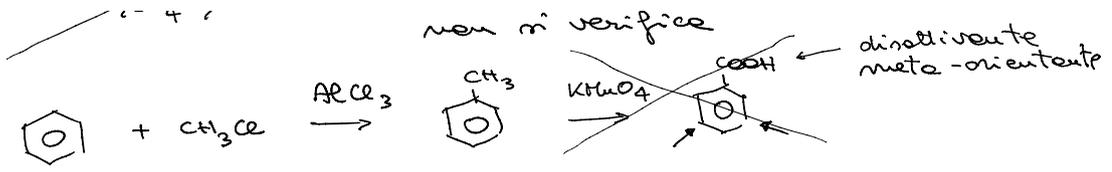


Propagazione

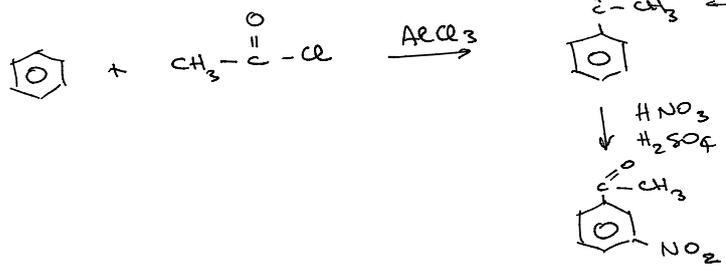


Radicale BENZILICO Stabilizzato per risonanza!





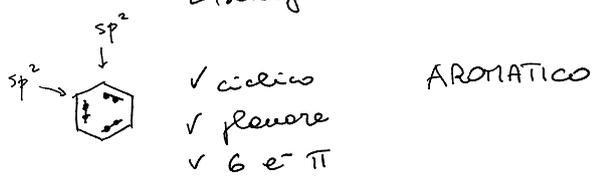
Questo quello è fortemente disattivato e non reagisce nell'acilazione o nell'acilazione di F.C.



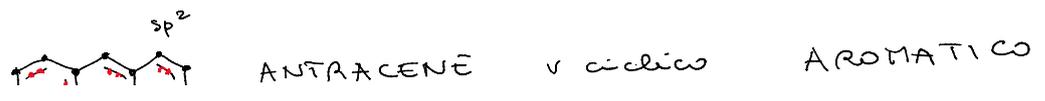
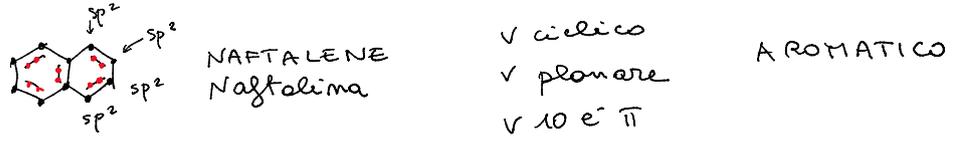
REGOLA DI HÜCKEL

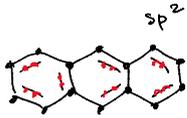
Un composto può dirsi aromatico se

1. È CILICO
 2. È PLANARE
 3. POSSIEDE UN NUMERO DI ELETTRONI π PARI A $4m+2$ ($m=0, 1, 2, 3, \dots$)
- Esempio: elettroni π possono essere 2, 6, 10, 14...



SISTEMI BENZENOIDI

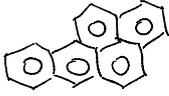




ANTRACENE

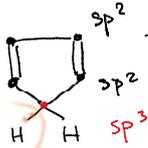
- ✓ ciclico
- ✓ planare
- ✓ 14 e⁻ π

AROMATICO



Benzofurano

SISTEMI NON BENZENOIDI

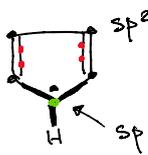


1,3-CICLOPENTADIENE

- ✓ ciclico
- Planare? **NO!**

NON AROMATICO

TOLGO H⁺

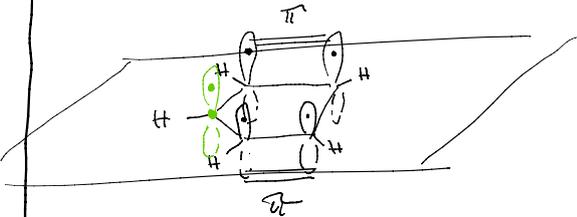


RADICALE CICLOPENTADIENILICO

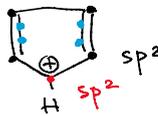
- ✓ ciclico
- ✓ planare
- X 5 e⁻ π

NON AROMATICO

Se applicate Hückel
considerate flussi
i radicali del C,
i carbocationi e
i carboanioni



TOLGO H⁺

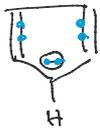
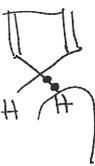


CARBOCATIONE

- ✓ ciclico
- ✓ planare
- X 4 e⁻ π

CICLOPENTADIENILICO
NON AROMATICO

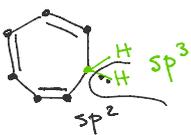
TOLGO H⁺



ANIONE CICLOPENTADIENILICO

- ✓ ciclico
- ✓ planare
- ✓ 6 e⁻ π

AROMATICO

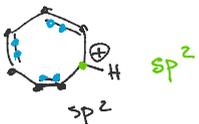


CICLOEPTATRIENE

- ✓ ciclico
- X planare

NON AROMATICO

- H⁺



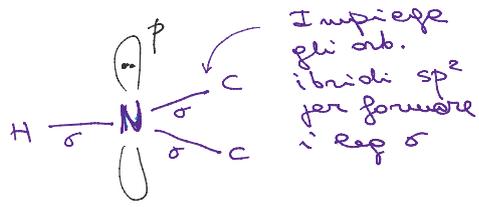
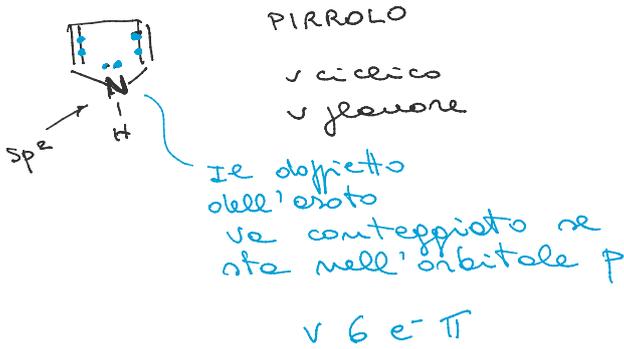
CATIONE CICLOEPTATRIENILICO

- ✓ ciclico
- ✓ planare
- ✓ 6 e⁻ π

AROMATICO



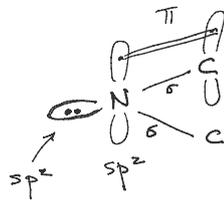
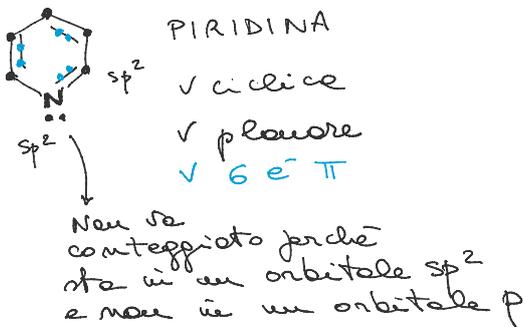
ETEROCICLI cicli contenenti eteroatomi (N, O, S...)



AROMATICO!

 21 kcal/mole

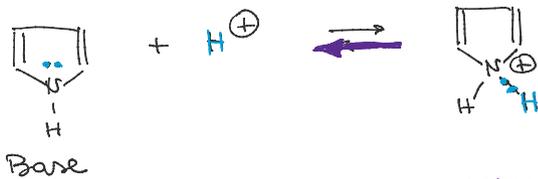
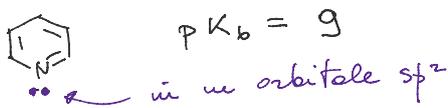
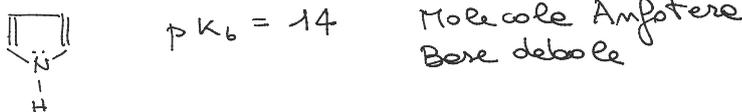
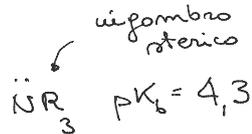
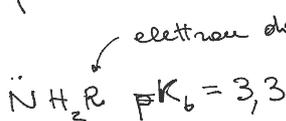
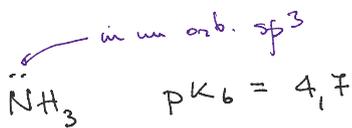
 energia di risonanza



AROMATICO!

 23 kcal/mole

 energia di risonanza



NON È AROMATICO

AROMATICO

 Il doppietto non

 condiziona dell'azoto

 è ineguato nella risonanza