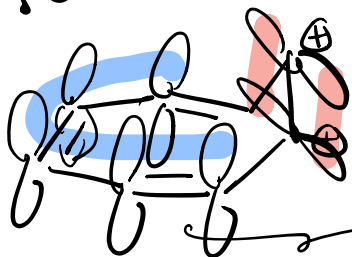
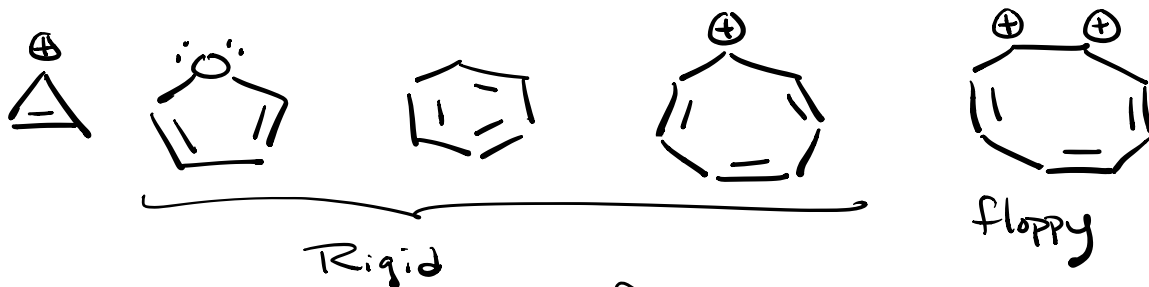


Aromatic Compounds & Reactions

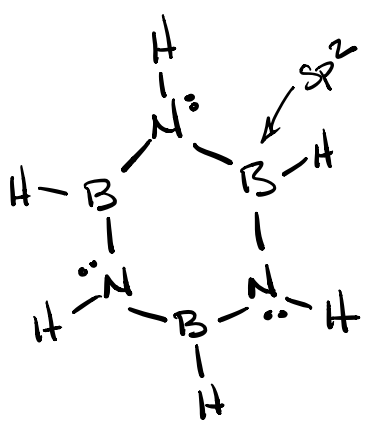
Aromatic

- Flat
- * - Ring
- Fully conjugated, all sp^2
- $4n + 2 \pi e^-$ | $n = \text{integer } (0, 1, 2, \dots)$

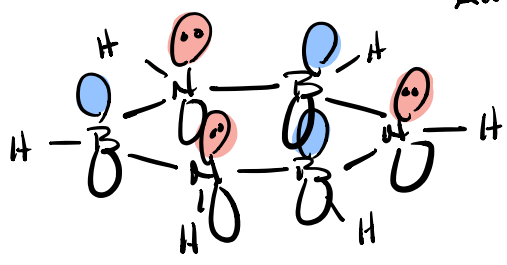
Allowed # e^- $4n+2$	# n
2	0
6	1
10	2
14	3
⋮	⋮



Bending \neq Aromaticity

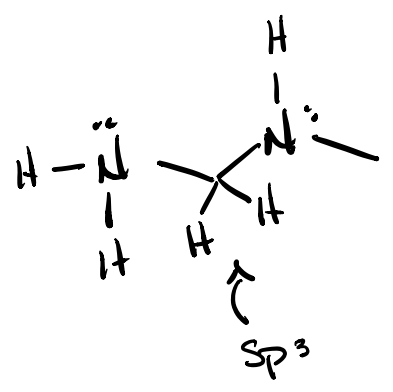
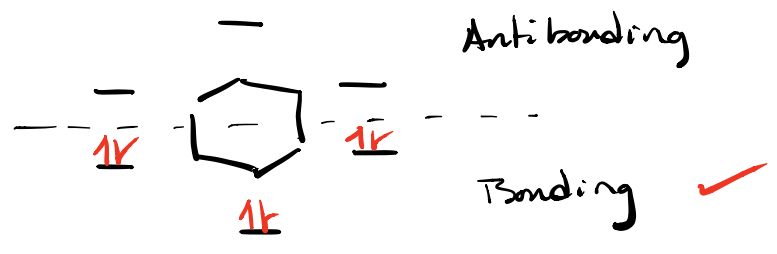


Aromatic ?



Aromatic !

- ✓ - Flat
- ✓* - Ring
- ✓ - Fully conjugated, all sp^2
- ✓ - $4n + 2 \pi e^-$ | $n = \text{integer } (0, 1, 2, \dots)$
 $6 \pi e^-$



Survey of Aromatics Nomenclature



toluene



xylene



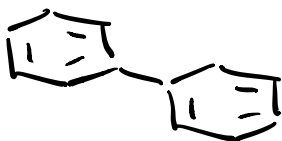
ortho
xylene
o-xylene



meta
xylene
m-xylene



para
xylene
p-xylene



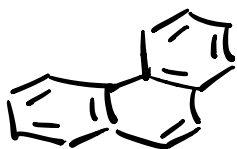
biphenyl



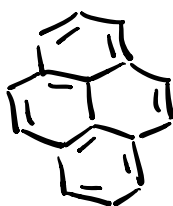
Naphthalene



anthracene



Phenanthrene



pyrene



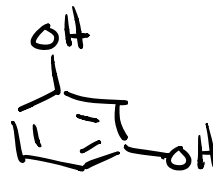
pyridine



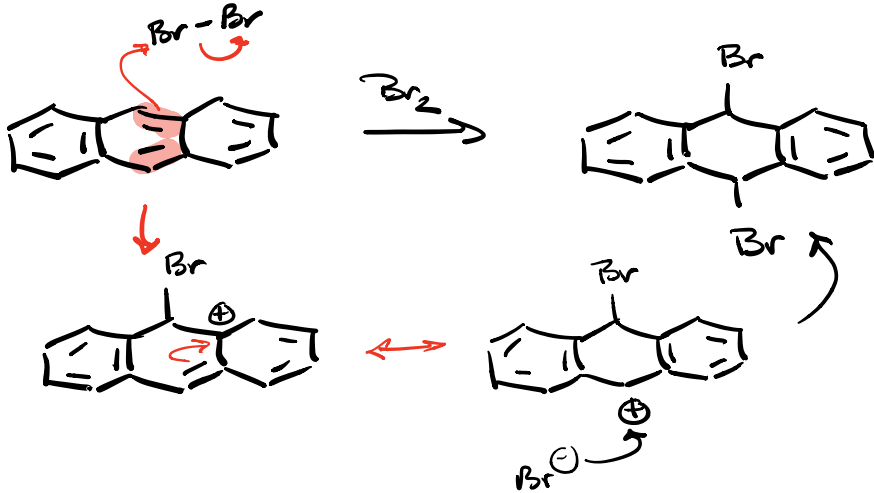
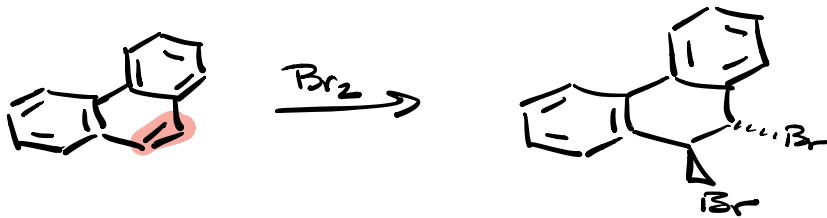
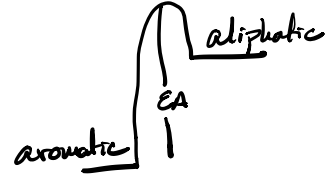
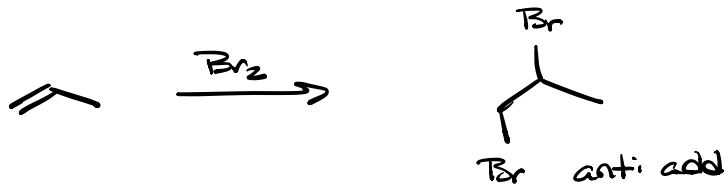
phenol



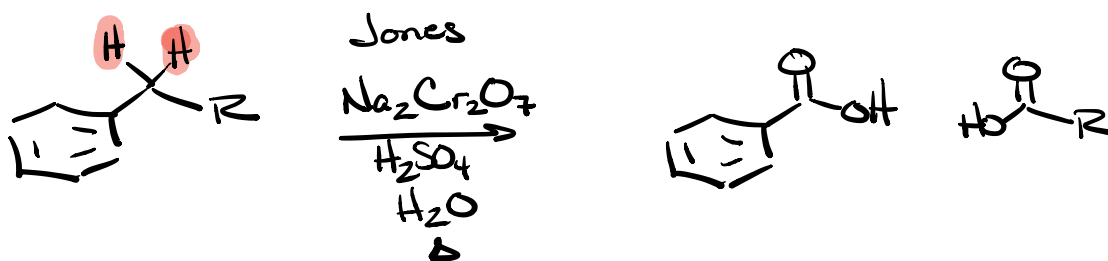
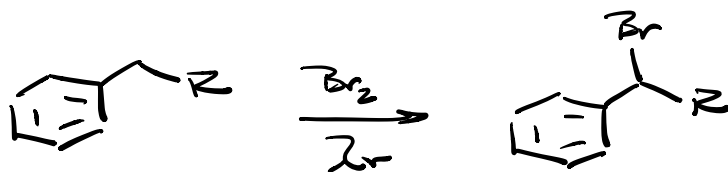
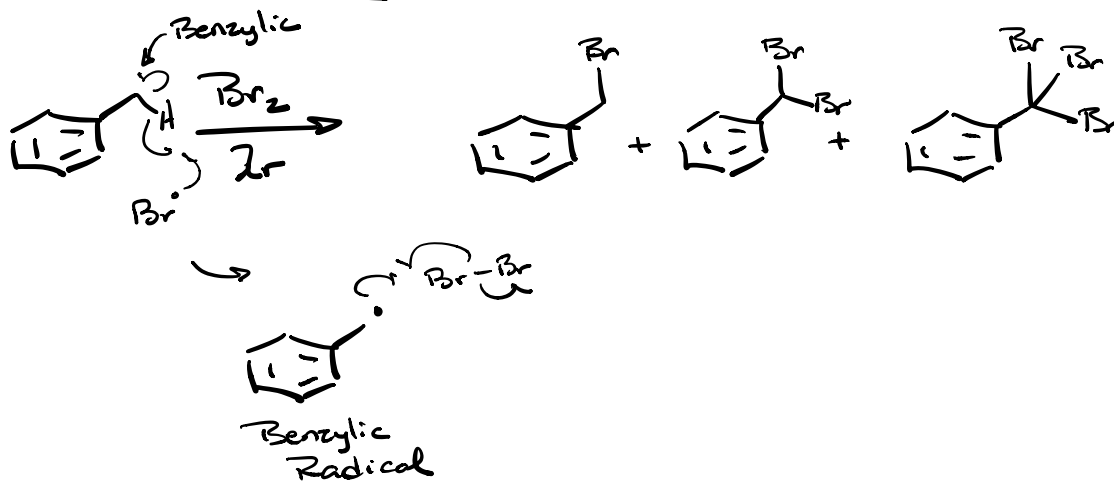
aniline

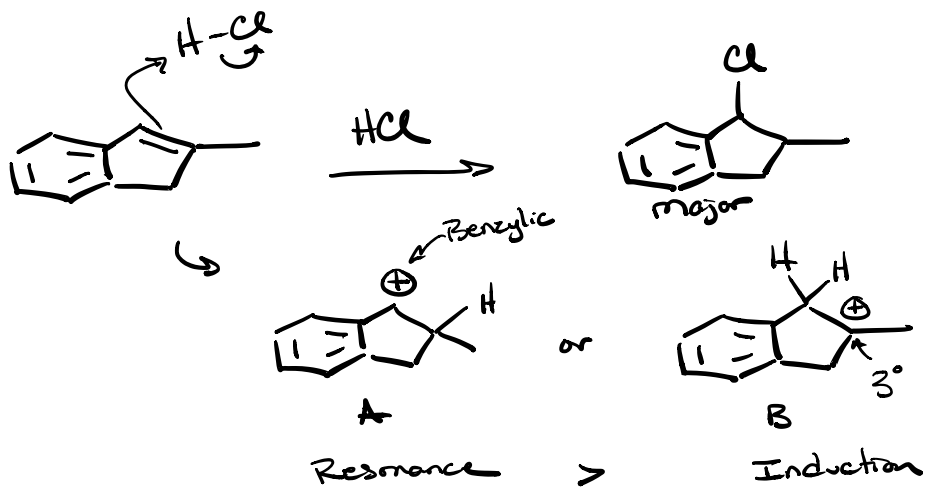
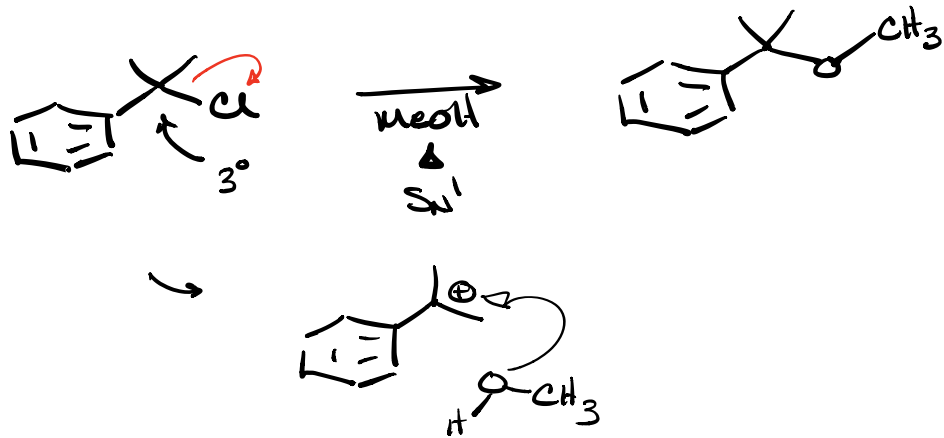
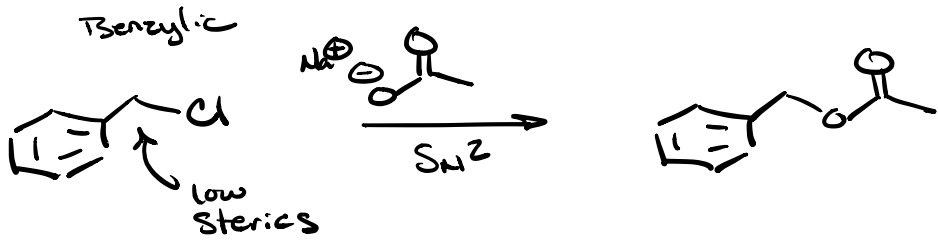


m-cresol

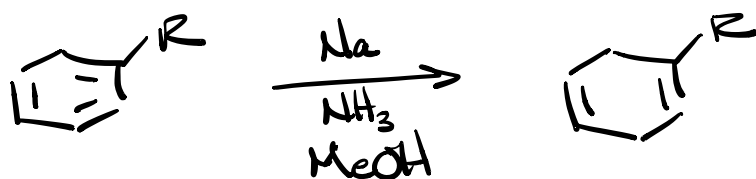
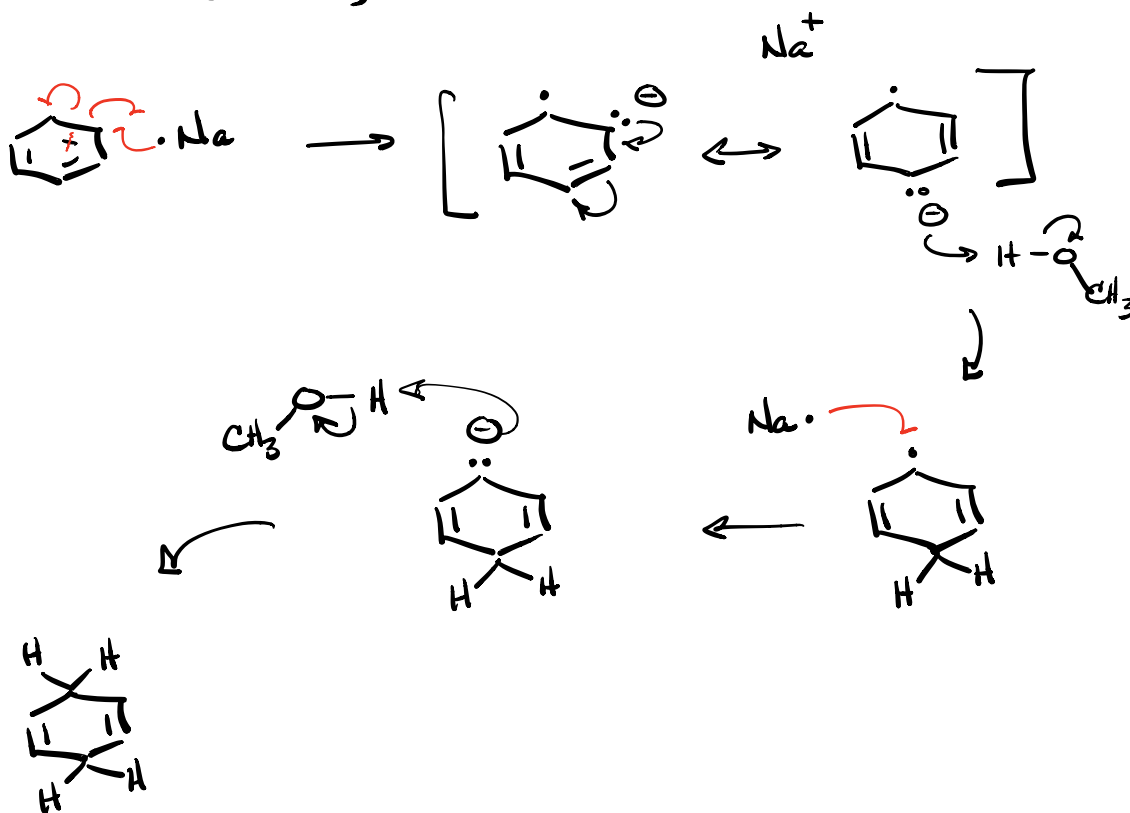
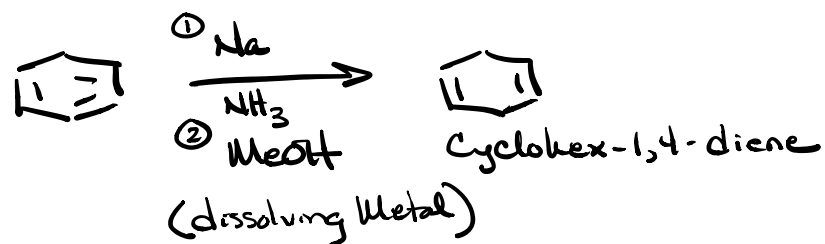


Review

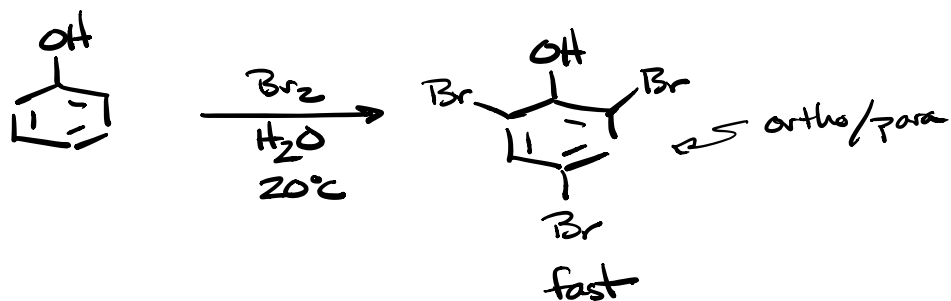
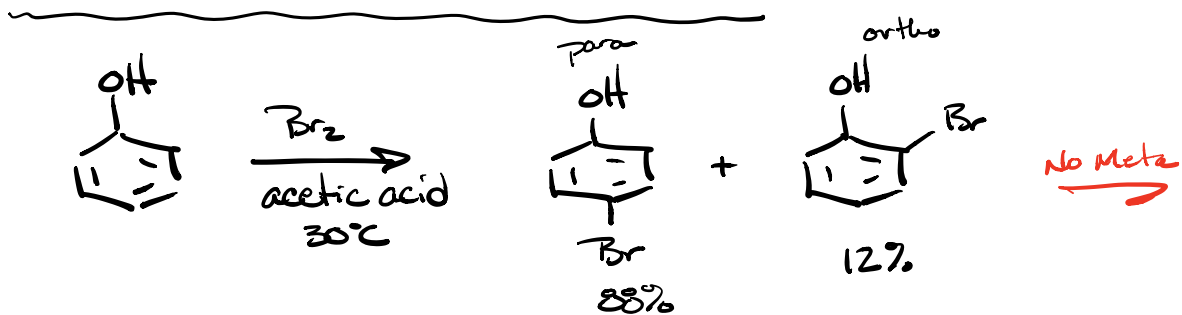
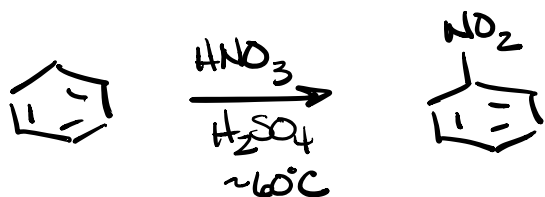
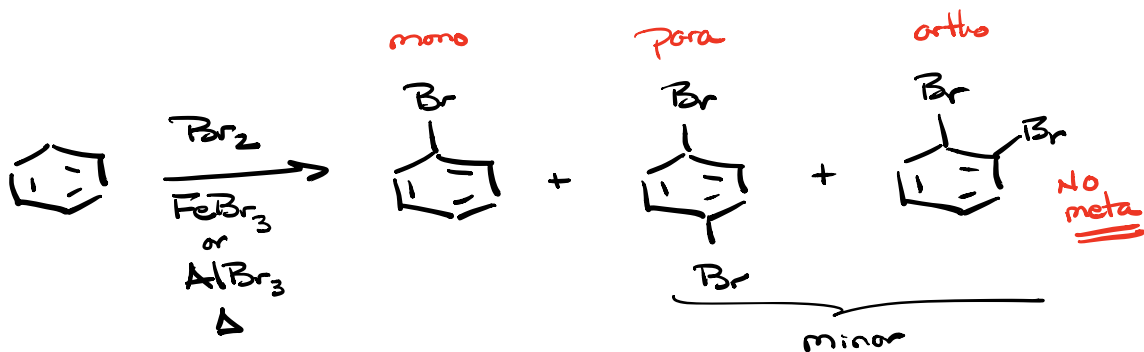


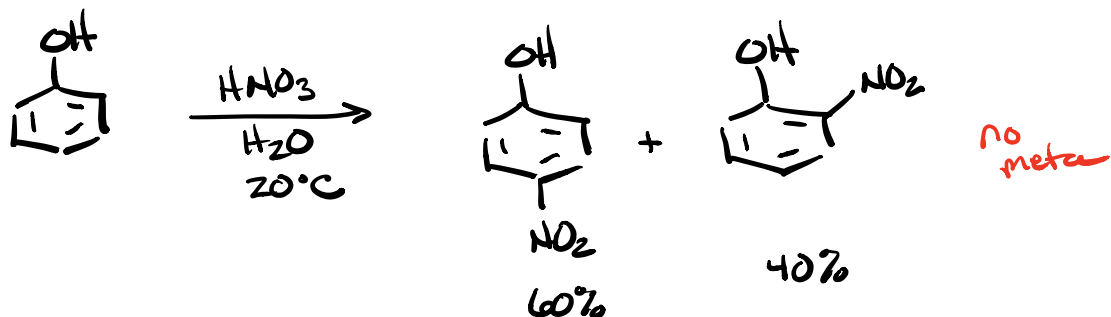
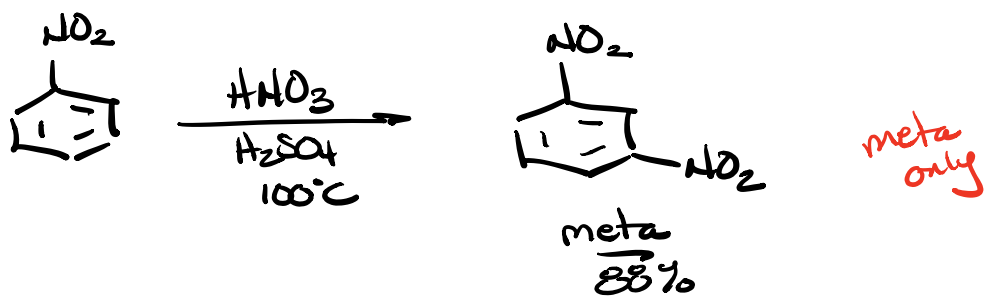


Birch Reduction



Electrophilic Aromatic Substitution





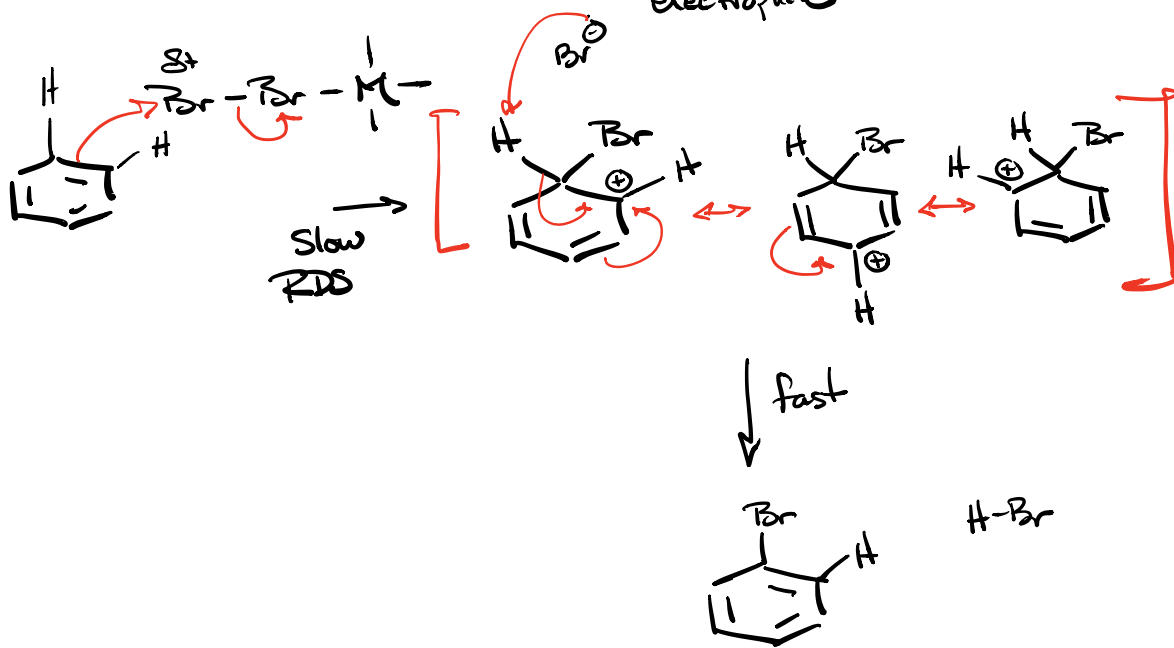
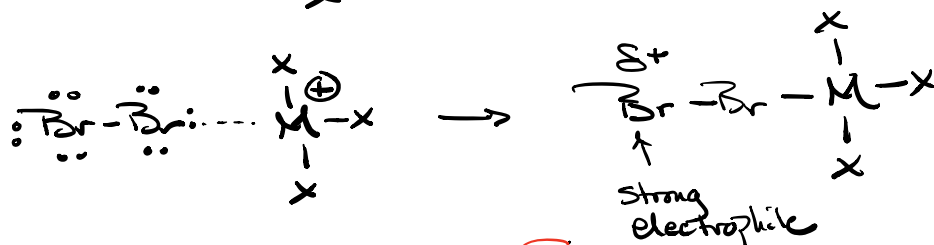
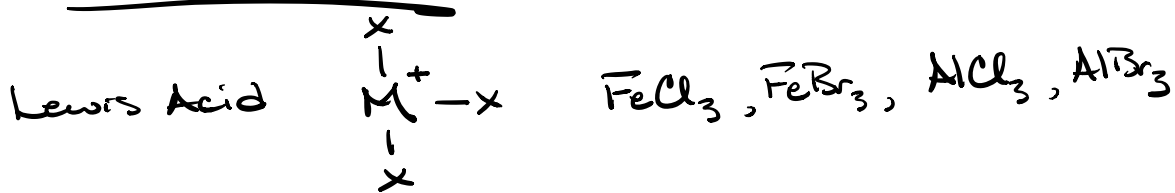
\Rightarrow Some groups direct ortho, para

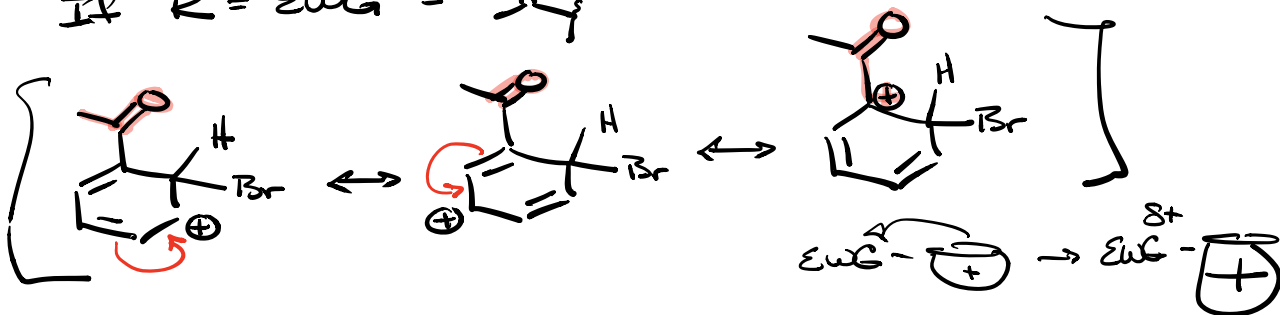
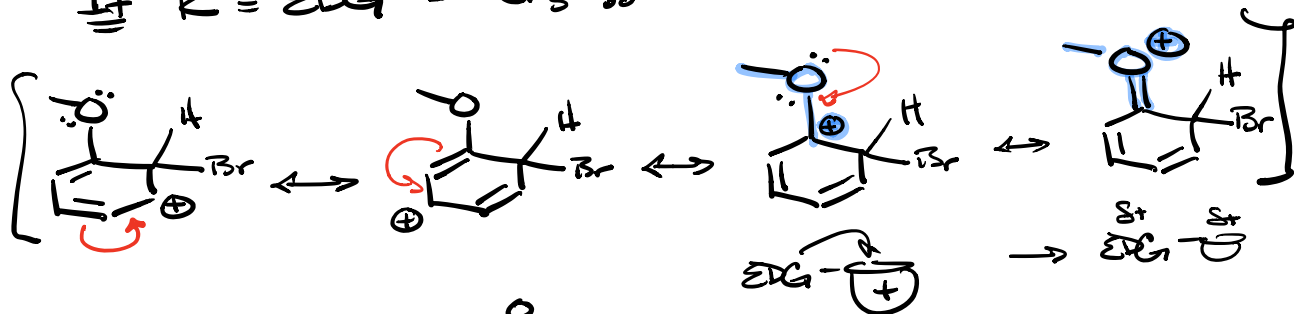
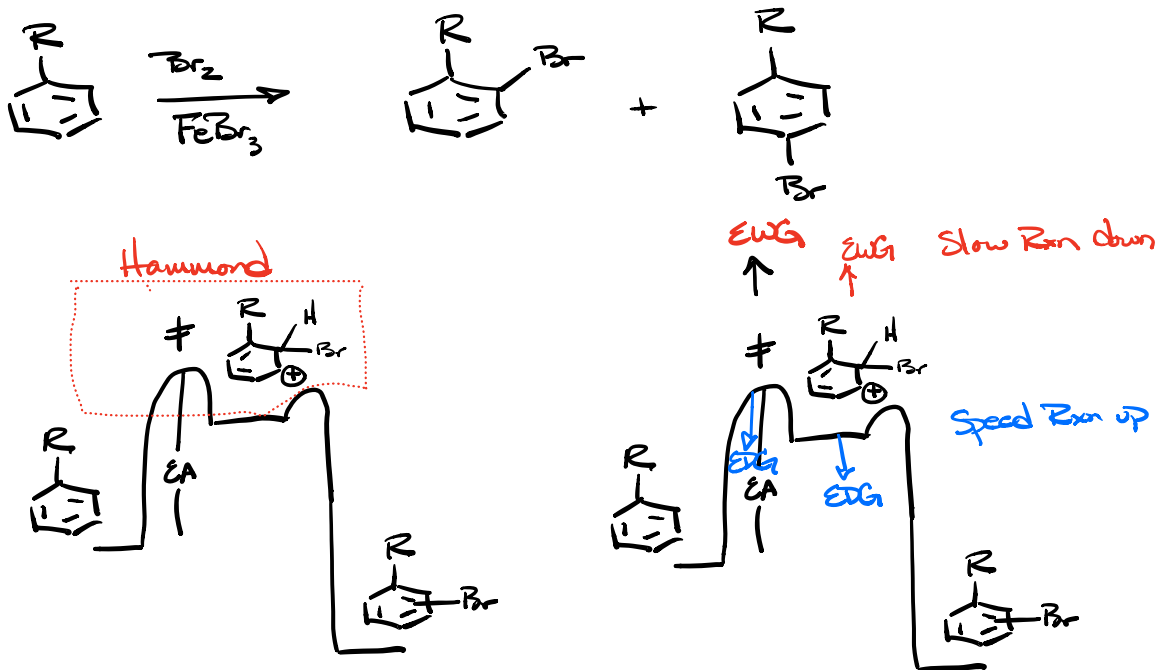
\Rightarrow Some groups direct meta

\Rightarrow Some activate \Rightarrow speed up Rxn

\Rightarrow Some deactivate \Rightarrow slow down Rxn

Mechanism





Based on Rate of Rxn

