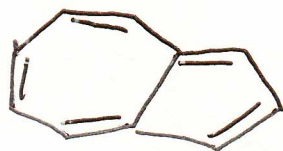


cyclohepta-1,3,5-trienyl ion  
tropylium ion

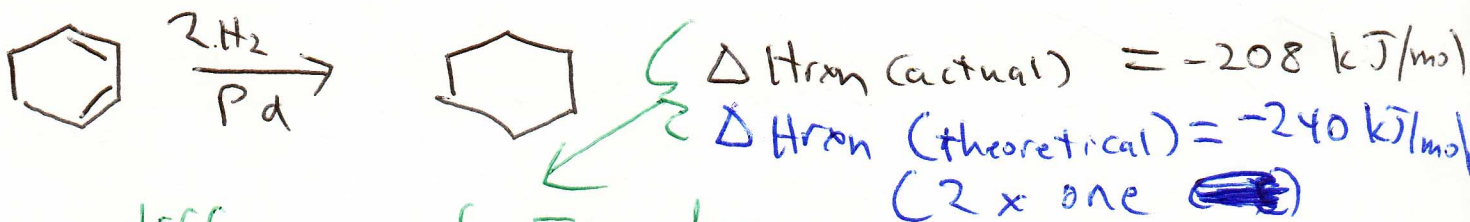
NOT aromatic  
sp<sup>3</sup>-hybridized carbon  
blocks full conjugation



azulene

✓ aromatic  
planar, cyclic,  
conj., 10 π e<sup>-</sup>  
(decagon for Frost circle)

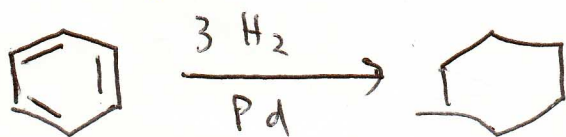
Experimental evidence of benzene stability



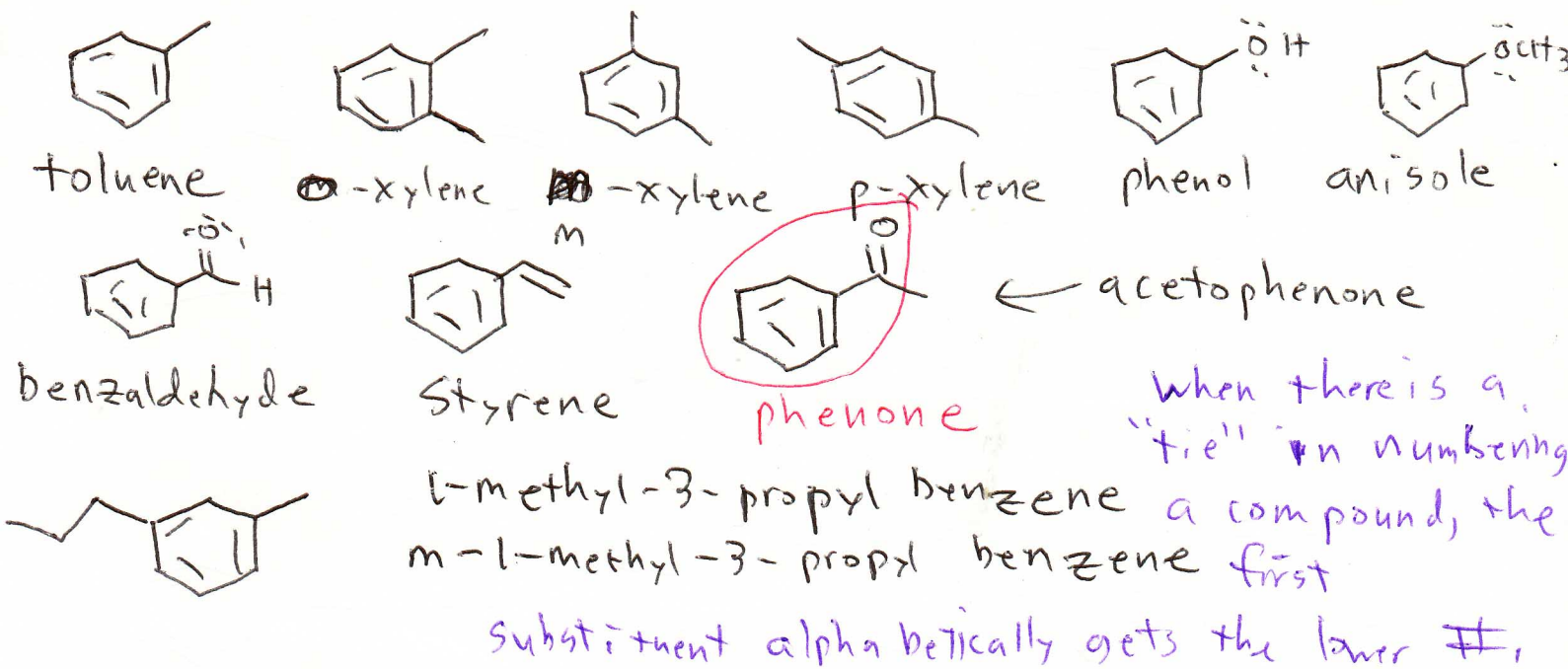
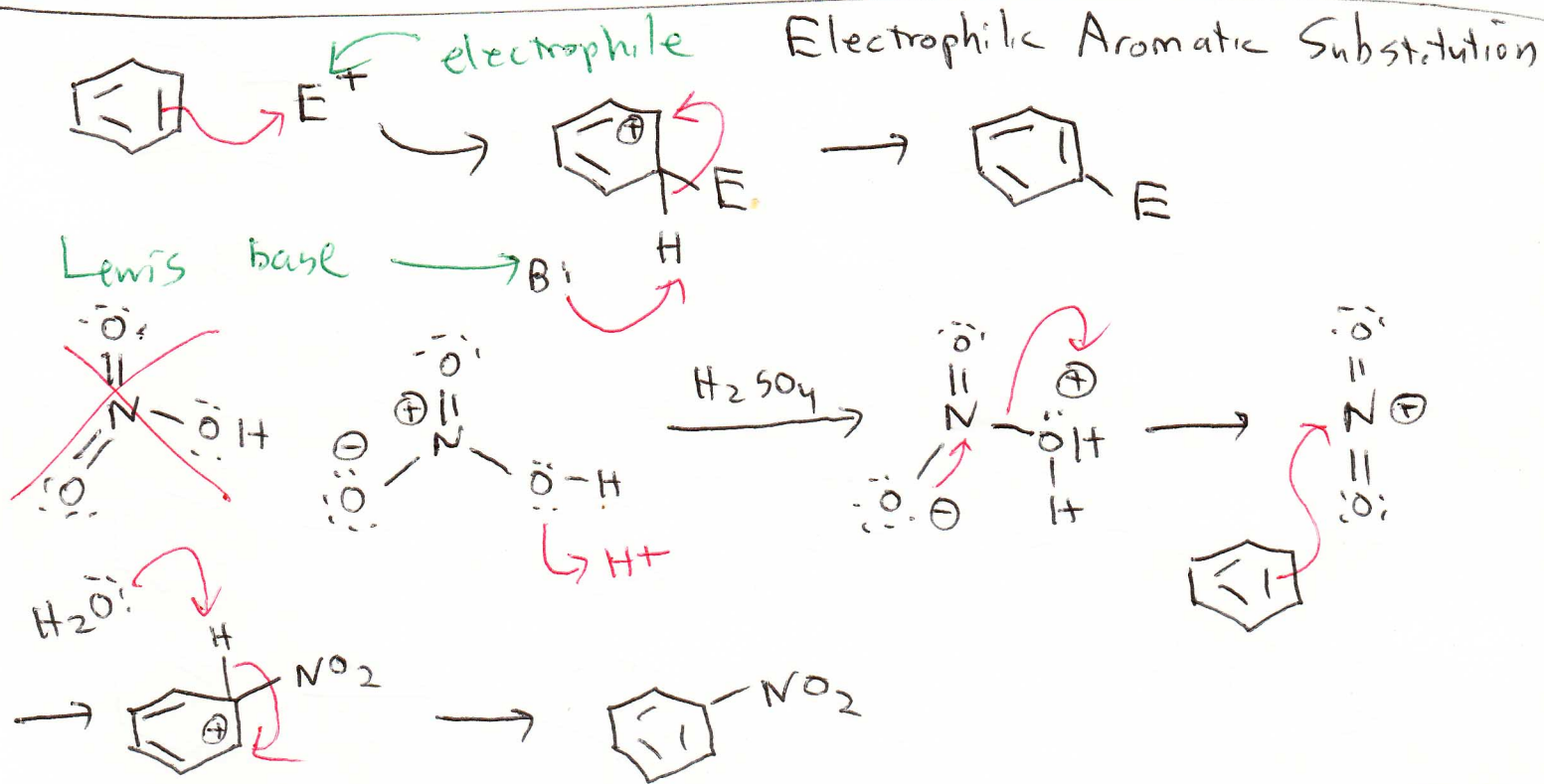
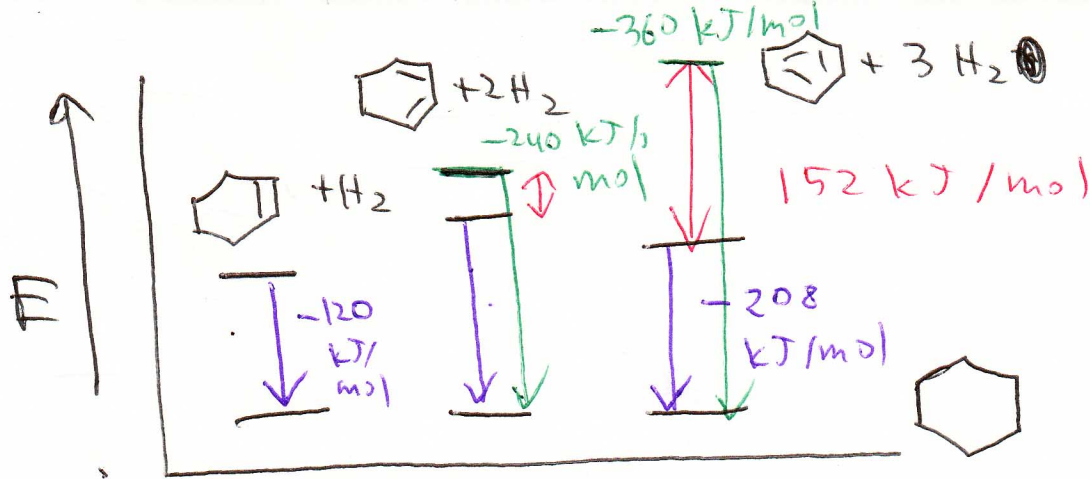
difference of E due to conjugation

(2 x one ~~ene~~)  
C=C  
|ΔE| = 32 kJ/mol

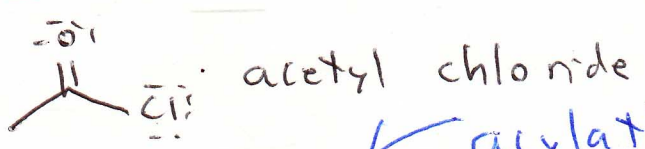
⊕ vs cyclohexa-1,3-diene would be more stable (lower-energy) than cyclohexa-1,4-diene, since less energy would be released in the rxn with the 1,3-diene, meaning it was lower in energy to begin with



ΔHrxn (actual) = -208 kJ/mol  
ΔHrxn (theoretical) = -360 kJ/mol  
|ΔE| = 152 kJ/mol



# Friedel-Crafts alkylation + acylation



Lewis acid  $\rightarrow$   $\text{AlCl}_3$

acylation

