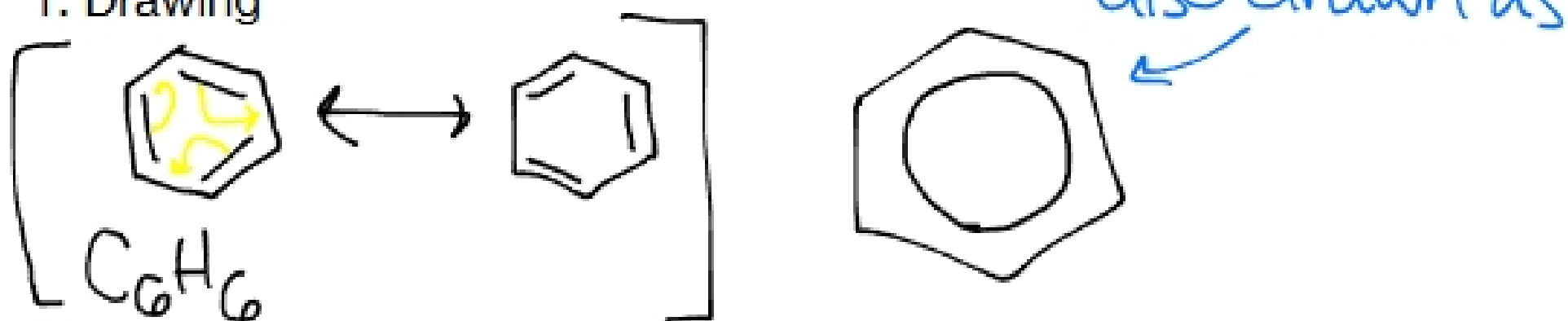


OChem Lecture 8-1

Chapter 15: benzene and aromaticity

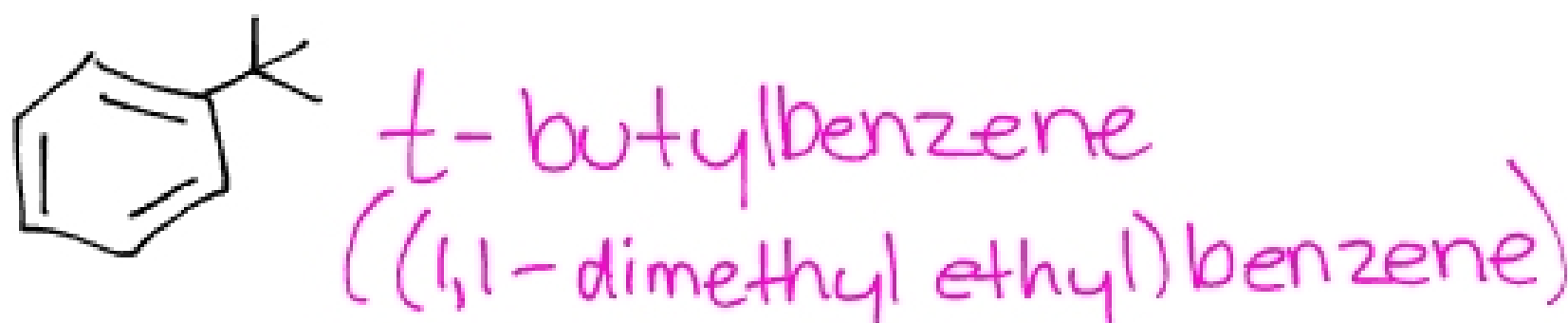
I. Naming and drawing benzenes (15-1)

1. Drawing



2. Naming

A. Monosubstituted - prefix + benzene



B. Disubstituted

Ortho: 1,2 - relationship

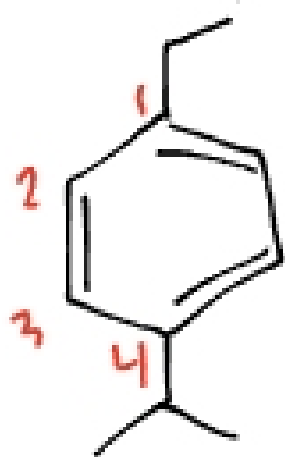
Meta: 1,3 - relationship

Para: 1,4 - relationship



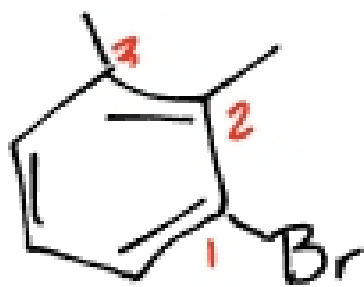


1,3 bromonitrobenzene OR  
m-bromonitrobenzene

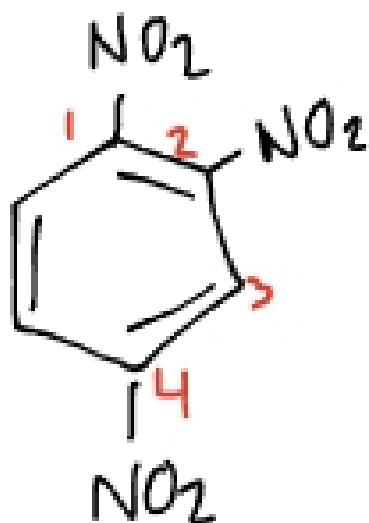


p-ethylisopropylbenzene

C. Tri- and poly- substituted



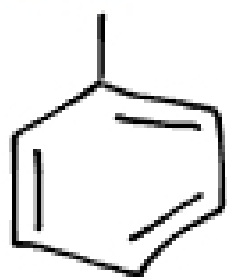
1-bromo-2,3-dimethylbenzene



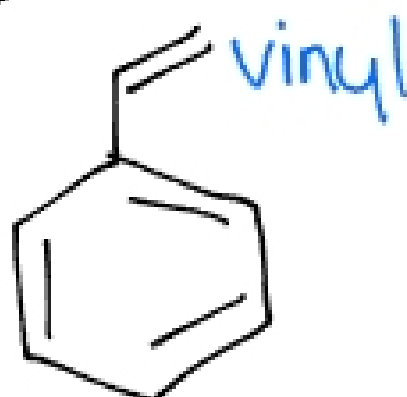
1,2,4-trinitrobenzene

D. Common names

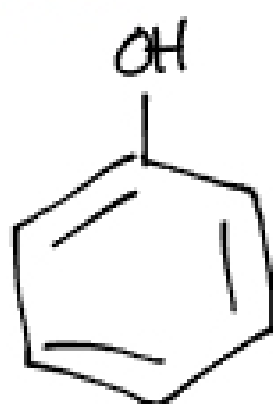
-toluene



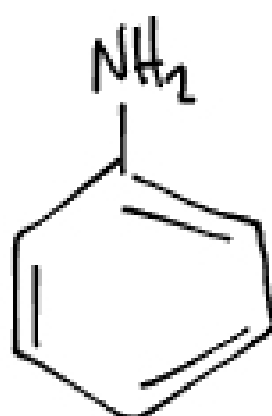
-styrene



-phenol



-aniline



## II. Aromaticity

### 1. Define (15-6)

- A. Huckel's Rule: electron count of a cyclic, conjugated system must fit the formula  $4n+2$  ( $n=0,1,2,\dots$ )
- B.  $4n$  are antiaromatic (unstable)
- C. Systems that do not apply are called nonaromatic

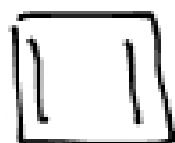
Planar



cyclic + conjugated  
 $6\pi$  e<sup>-</sup>s  
fits  $4n+2$   
planar

Aromatic

Cyclobutadiene



cyclic + conjugated  
 $4\pi$  e<sup>-</sup>s  
fits  $4n$

Antiaromatic