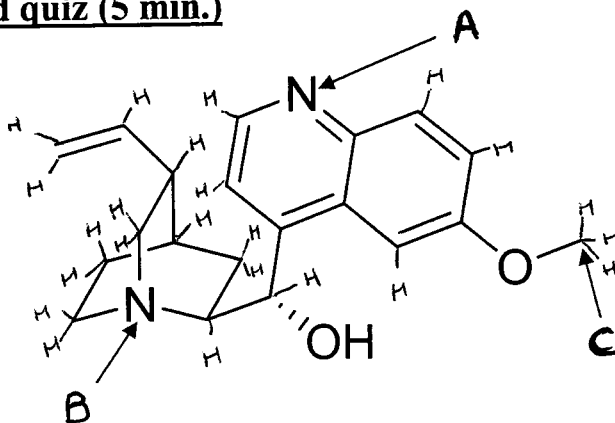


Chapter 2

Chem 30A- Week 2

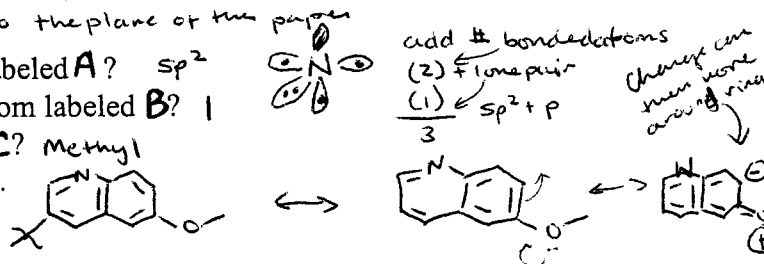
Warm-up: speed quiz (5 min.)



quinine

The structure above is quinine- an anti-malarial agent.

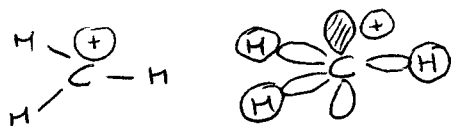
- What is the **total** number of hydrogens? 24
- What does the dash represent? OH into the plane of the paper
- What is the hybridization of the atom labeled **A**? sp^2
- How many lone pair electrons on the atom labeled **B**? 1
- What is the name of the group labeled **C**? Methyl
- Draw any possible resonance structures.



Discussion Questions

1. A *carbocation* is a trivalent carbon with a positive charge.

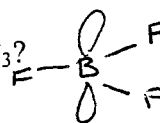
Draw the structure of a carbocation. Justify your structure.



$4e^- - 3 = 1e^- = \text{pos. chg}$
 molecule has a +1 chg
 needs other 3e-'s to form bonds w/H
 C started w/ 4 atomic orbitals
 \therefore must have 4 molec. orbitals

What is the hybridization of the carbon atom? sp^2
 What geometry does the carbocation have? planar
 What relationship do you see between a carbocation and BF_3 ?

BF_3 is also sp^2 hybridized
 w/ empty p orbital

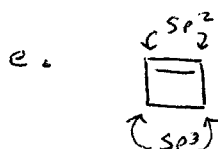
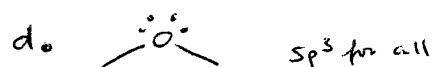
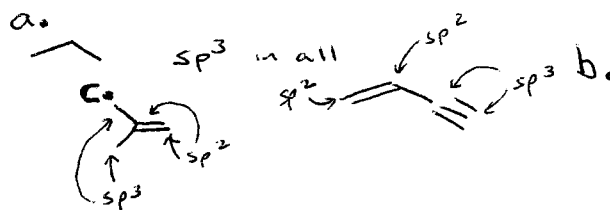


\therefore isoelectronic w/ C^+ (same # e-'s)

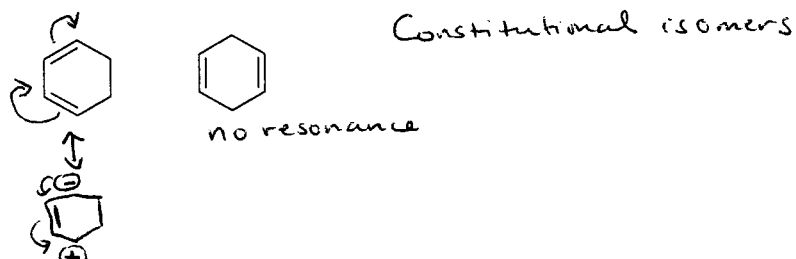
Chapter 2

2. What is the hybridization for each carbon atom?

- propane
- 1-butyene-3-yne
- 2-methylpropene
- dimethyl ether
- cyclobutene



3. What is the relationship of the below compounds? Draw any resonance structures.



4. Draw all possible resonance structures. Identify the most stable and explain why.

