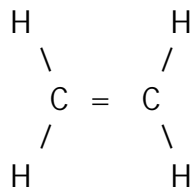


CHEM 35
General Chemistry
Quiz #8

December 1, 2000

Name: _____ Answer Key

Ethylene (C₂H₄) has the following structure:



1. What is the molecular geometry (i.e., linear, tetrahedral, etc.) about each carbon atom?

3 bonding electron groups about each carbon => trigonal planar

2. What is the hybridization of the carbon orbitals involved in the σ -bonding framework?

3 equivalent orbitals needed: sp² hybridization

3. Which orbital on carbon is involved in the π -bond between the two carbon atoms?

There is one 2p orbital that is not hybridized and it is the orbital that is involved in the C-C pi bond.

4. Which orbital on the hydrogens is involved in the σ -bonds with carbon?

The 1s orbital on hydrogen forms a sigma bond with two of the sp² orbitals on each carbon.