

Problem Set 10: Bond Polarity and Polar Vs Nonpolar Molecules

1. Use an electronegativity chart (such as the one found on slide 3 of the Tutorial Notes for Bond Polarity and Polar Vs Nonpolar Molecules) to calculate the electronegativity difference for the following bonds. Label each bond as polar or nonpolar. For any polar bonds, indicate the direction of electron pull with the partial positive and partial negative signs.
 - a. C-C
 - b. N-H
 - c. C-Br
 - d. C-H
 - e. Si-Br
 - f. I-Br
 - g. S-O
2. Assume all bonds in these hypothetical molecules are POLAR with a change in electronegativity of 0.9. Which molecules would you expect to be polar?
 - a. A molecule with a linear molecular geometry.
 - b. A molecule with a bent molecular geometry.
 - c. A molecule with two bonding pair of electrons and one lone pair of electrons on the central atom.
 - d. A molecule with a tetrahedral molecular geometry.
3. Draw Lewis structures for the following molecules, and determine if the molecules are polar or nonpolar.
 - a. NCl_3
 - b. H_2O
 - c. PCl_3
 - d. SO_2
 - e. CCl_4