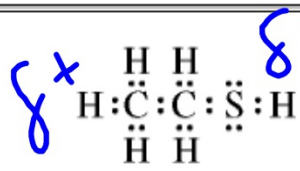
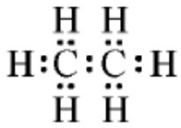
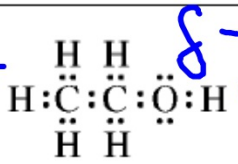
Day 2.7 Warm-Up

Use the information in the table below to respond to the statements and questions that follow.

Compound	Formula	Lewis Electron-Dot Diagram
Ethanethiol	CH_3CH_2SH	 δ+ δ− polar
Ethane	CH_3CH_3	
Ethanol	CH_3CH_2OH	 δ+ δ− Polar
Ethyne	C_2H_2 10e⁻ −6 4e⁻	H− C≡C−H

1. Draw the complete Lewis electron-dot diagram for ethyne in the appropriate cell in the table above.

2. Which of the four molecules contains the shortest carbon-to-carbon bond? Explain.

The triple in ethyne is the shortest b/c more shared e⁻ in a triple bond than single results in less nuclei repulsion.

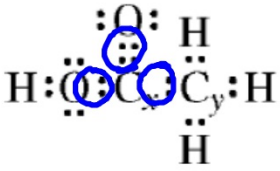
3. Identify a compound from the table above that is nonpolar. Justify your answer.

nonpolar molecule = zero net dipole moment

equal distribution of e⁻ throughout the molecule.

Ethane and ethyne

4. A Lewis electron-dot diagram of a molecule of ethanoic acid is given below. The carbon atoms in the molecule are labeled *x* and *y*, respectively.



Identify the geometry of the arrangement of atoms bonded to each of the following.

a. Carbon *x* = 3 e- regions (w/no lone e-) = trigonal planar

b. Carbon *y* = 4 e- regions (w/no lone e-) = tetrahedral