1. What is the relationship between the dipole moment and the bond moment? How is it possible for a molecule to have bond moments and yet be nonpolar?

2. The dipole moments of the hydrogen halides decrease from HF to HI. Explain this trend.

3. Sketch the bond moments for the following molecules, and predict whether the molecule is polar (has a net dipole moment) or nonpolar:
   a. AlCl₃
   b. OCS
   c. CS₂
   d. H₂O
   e. PCl₃
   f. XeF₄
   g. PCl₅
   h. SF₆

4. Which of the following molecules has a higher dipole moment?
   ![Molecules](image)

5. Arrange the following compounds in order of increasing dipole moment:

   ![Compounds](image)

6. Draw three Lewis structures for compounds with the formula C₂H₂F₂. Indicate which of the compound(s) are polar.