1. The electron geometry for H2O is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   1. Linear
   2. Trigonal planar
   3. Tetrahedral
   4. Bent
   5. Trigonal pyramidal
2. What is the molecular shape for PF3?
   1. Bent
   2. Trigonal planar
   3. Trigonal pyramidal
   4. Tetrahedral
3. What is the electron geometry for BH3?
   1. Bent
   2. Trigonal planar
   3. Tetrahedral
   4. Trigonal pyramidal
4. Which statement is true about electron and molecular geometries?
   1. Molecular geometry can be determined **only** by looking at a substance’s chemical formula.
   2. Electron geometry is the molecule’s real-world shape.
   3. Linear molecules always contain three atoms.
   4. Molecules with a bent molecular shape can only have a trigonal planar electron geometry.
   5. None of the statements are true.
5. What is true about a tetrahedral electron geometry?
   1. Four bonds are always present.
   2. There will never be a lone pair on the central atom.
   3. It always leads to a 3-dimensional molecular shape.
   4. Four electron groups are always present.
   5. The molecular shape must also be tetrahedral.
6. How many bonding regions are necessary for an octahedral molecular shape?
   1. 2
   2. 4
   3. 6
   4. 8
7. A generic molecule with the formula AX3 has a trigonal pyramidal molecular shape. What is its electron geometry?
   1. Trigonal planar
   2. Tetrahedral
   3. Trigonal pyramidal
   4. It can’t be determined from the given information.
8. A generic molecule has the formula AX2. What is its electron geometry?
   1. Linear
   2. Trigonal planar
   3. Tetrahedral
   4. It can’t be determined from the given information.
9. The generic molecule AX4 has one lone pair on the central atom. What is its electron geometry?
   1. Tetrahedral
   2. Bent
   3. Octahedral
   4. Trigonal pyramidal
   5. Trigonal bipyramidal
10. Which pair of molecules have the same molecular shape?
    1. CO2 and SO2
    2. BF3 and PF3
    3. OF2 and H2O
    4. CH4 and NH3
    5. CO2 and H2O
11. Which bond(s) is/are polar? Select any that apply.
    1. I-F
    2. O=O
    3. Cl-H
    4. C-H
    5. B-H
12. Which bond shows the partial charges labeled correctly?
    1. δ- C=O δ+
    2. δ- N-H δ+
    3. δ+ Si-H δ+
    4. δ- F-F δ-
13. Rank the polarity of the bonds from lowest to highest based on estimated electronegativity differences from the trends we discussed in class:
    * 1. C-F
      2. C-N
      3. C-C
      4. C-H
      5. C-O
14. iv < iii < ii < v < i
15. i < v < ii < iii < iv
16. iii < iv < ii < v < i
17. i < v < ii < iv < iii
18. iii < iv < i < v < ii
19. Which molecules are nonpolar? Select any that apply.
    1. 
    2. 
    3. 
    4. 
20. Which molecules are polar? Select any that apply.
    1. SO2
    2. CO2
    3. NF3
    4. BF3
    5. CO
21. Which statements are true about molecular polarity? Select any that apply.
    1. All tetrahedral molecules are nonpolar.
    2. All diatomic elements are nonpolar.
    3. All trigonal pyramidal molecules are polar.
    4. Some bent molecules are nonpolar.
    5. Some fluorine-containing molecules are nonpolar.