**Honors – VSEPR Quiz Review**

For questions 1-3, draw the Lewis structure of the indicated compound, and then determine the shape and bond angle of the molecule. Show resonance structures for compounds in which they exist. (Lewis structure, 5 pt, shape 2 pt, angle 2 pt):

1. PBr3 shape: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

bond angle: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. H2CS shape: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

bond angle: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. acetate ion shape: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

bond angle: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Cyclopropane (C3H6) is a molecule in which the three carbon atoms are arranged in a triangle (hence the “cyclo” part of the name). This molecule is also notably difficult to make, given the presence of considerable “ring strain” among the carbon atoms. Given the structure of cyclopropane and your knowledge of VSEPR, explain why cyclopropane is so unstable.
2. In some very crowded molecules, such as iodoform (CHI3), the bond angles differ slightly from what you might expect. For example, in iodoform, the I-C-I bond is 113o rather than the 109.5o that we’ve learned VSEPR predicts. Does this finding refute VSEPR, or does VSEPR somehow play a role in it? Explain!

Oh, and by the way, you won’t need to know weird bond angles like this on the quiz. If you remember the ones we talked about in class (180o, 120o, 109.5o, 107o, 104.5o), you’ll be fine!