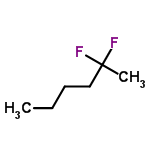
1. Name and give the symbol for the 4 substituents that are halogens.
   1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ c. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
   2. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ d. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
2. In the following molecule, classify the specified carbon as either primary, secondary, tertiary, or quaternary:

3-ethyl-3,4,5-trimethylnonane

Carbon 2\_\_\_\_\_\_\_\_ carbon 3\_\_\_\_\_\_\_\_ carbon 5\_\_\_\_\_\_\_

1. Which of the following molecules only contains secondary carbons?
   1. 3-methylhexane c. cyclohexane
   2. Hexane d. 1,3-dimethylcyclopentane
2. Fill in the blanks that are needed to make the following haloalkane:

[](http://www.chemspider.com/Chemical-Structure.19797757.html)

1. Alkane melting points and boiling points are said to be \_\_\_\_\_\_\_\_\_\_\_\_ (high/low).
2. Which has the higher boiling point: butane or decane? Why?
3. Which has the higher boiling point: cyclohexane or hexane? Why?
4. Draw and name any six isomers of C7H14F2.