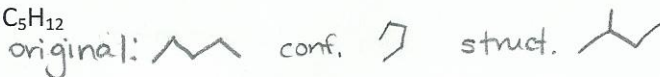
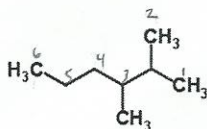


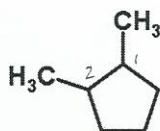
- How many bonds must carbon always have? 4
- What type of bonding occurs in alkanes? covalent - the sharing of electrons
- Are alkanes saturated or unsaturated? saturated - maximum number of hydrogens are used
- What is the difference between conformational isomers and structural isomers?
  - conformational - molecules w/ same atom connections but different structures
  - structural - molecules w/ same molecular formula but different atom arrangements

Ex.  $C_5H_{12}$ 

- Molecular formula for: alkane  $C_nH_{2n+2}$  cycloalkane  $C_nH_{2n}$
- Give the molecular formula for the following molecules. Then, state the name.

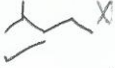





- a.  $C_8H_{18}$   
2,3-dimethylhexane



- b.  $C_7H_{14}$   
1,2-dimethylcyclopentane

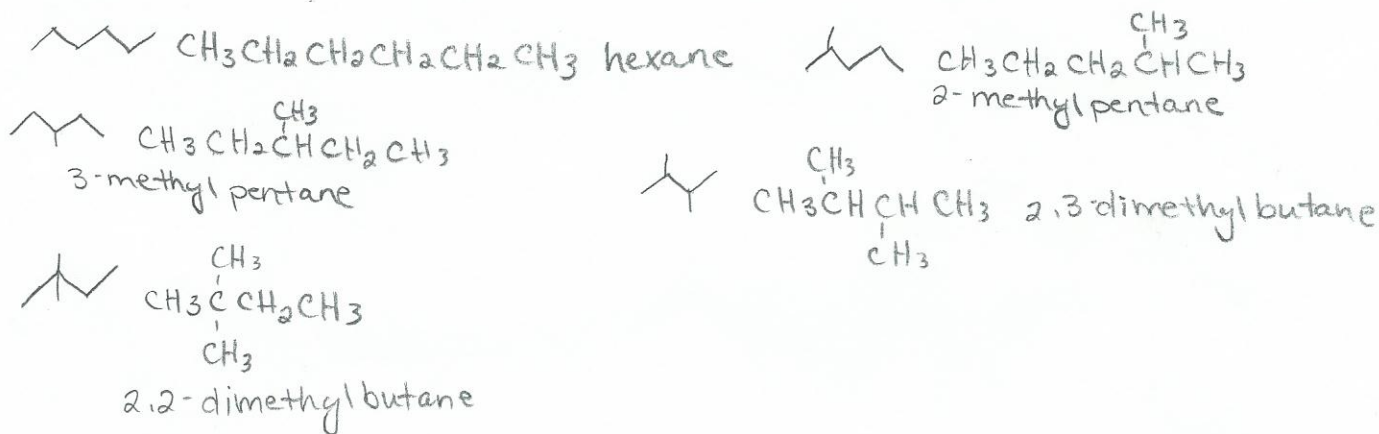
- Which of the following molecules has the molecular formula  $C_5H_{10}$ ?

- a. 2-methylpentane  X  
 b. cyclopentane   
 c. 1-methylcyclobutane   
 d. Pentane  X

- Draw both the line formula and condensed structural formula for a linear alkane with 7 carbons.



- Draw and name isomers for alkanes with the formula  $C_6H_{14}$ .



10. Fill in the chart with the corresponding prefix to number of carbons.

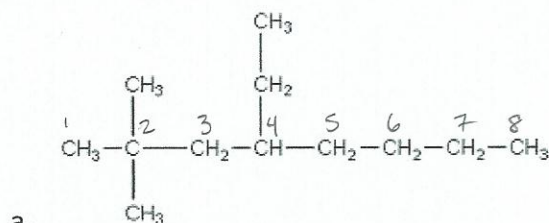
| Prefix | # of carbons |
|--------|--------------|
| eth    | 2            |
| dec    | 10           |
| Hept   | 7            |
| hex    | 6            |
| but    | 4            |
| meth   | 1            |
| prop   | 3            |
| pent   | 5            |
| Non    | 9            |
| Oct    | 8            |

11. What is the isopropyl group? Draw an example of it.

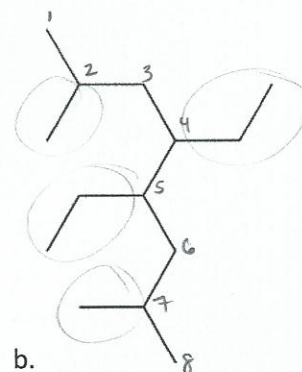
a methyl group coming off the second to the last carbon (as in chain, will mostly see in cyclic structures)



12. Name each of the following molecules.



4-ethyl-2,2-dimethyloctane



4,5-diethyl-2,7-dimethyloctane

13. Draw each of the following molecules.

a. 1-ethyl-2,3,5-trimethylcycloheptane



change the  
2- to 3-

b. 3-ethyl-5-methyl-4-propyldecane



14. Draw and name isomers for  $C_7H_{16}$ .

