heptane 2-methylhexane 3-methylhexane 2,2-dimethylpentane 2,4-dimethylpentane 2,3-dimethylpentane 3,3-dimethylpentane 3-ethylpentane 2,2,3-trimethylbutane 2. Draw all the structural isomers of C_5H_{10} . (Hint: there is either one double bond OR one ring; there are 12 isomers total) **10 are structural, 2 are geometric** cyclopentane methylcyclobutane 1,1-dimethylcyclopropane ethylcyclopropane trans-1,2-dimethylcyclopropane cis-1,2-dimethylcyclopropane 1-pentene trans-2-pentene cis-2-pentene 2-methyl-2-butene 3-methyl-1-butene 2-methyl-1-butene

1. Draw and name the nine structural isomers of heptane (C_7H_{16})

3. What is the difference between structural isomers and geometric isomers?

Structural isomers have different connectivity, while geometric isomers have the same connectivity but differ in their spatial, geometric position.

- 4. Draw the following structures below and find all the mistakes in the structure/name.
 - a. 2-chloro-2,4-dibutylhex-1,3-diyne.



Caution: Valence appears to be exceeded

Mistakes: parent chain is octane, branches are 2-chloro-2-butyl-4-ethyl, too many bonds on carbon 2 and 4.

b. 6-fluoro-2,3,3-triiodocyclohex-3-ene.



Caution: Valence appears to be exceeded

Mistakes: fluoro is on carbon 5, double bond is on carbon 1 (not 3), too many bonds on carbon 2.

8. Draw condensed structural formulas for the following:



b. 2-methylpentane



c. Trichloromethane



d. 2-chloro-3-cyclopentylhexane



- e. Cyclopenta-1,3-diene
- f. 1,4-dibromobenzene



g. 2-bromo-3-methylbut-2-ene



- h. Nona-1,8-diyne
- i. 3-methylpent-2-ene

