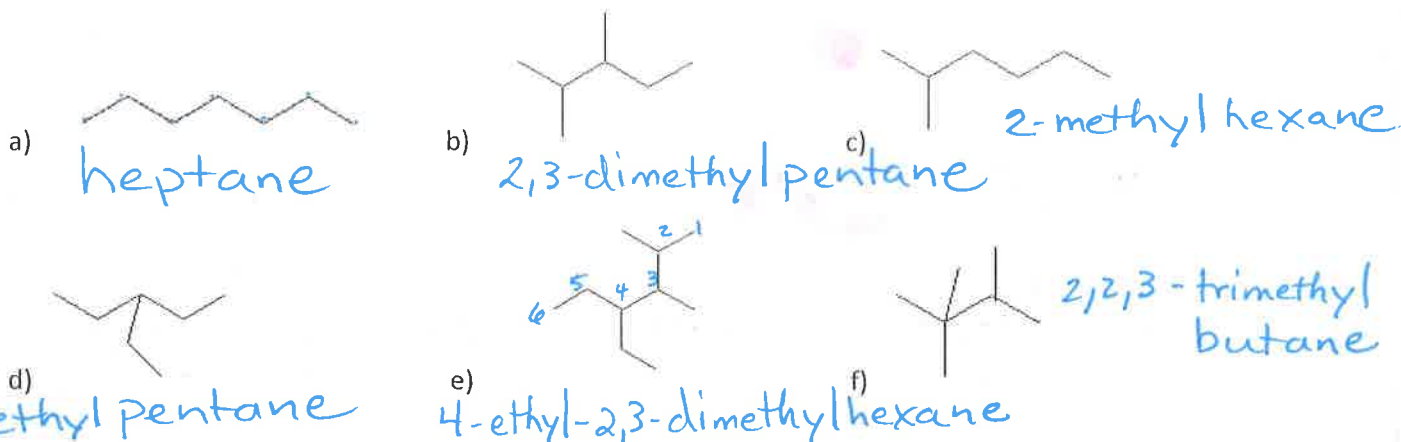


Alkanes

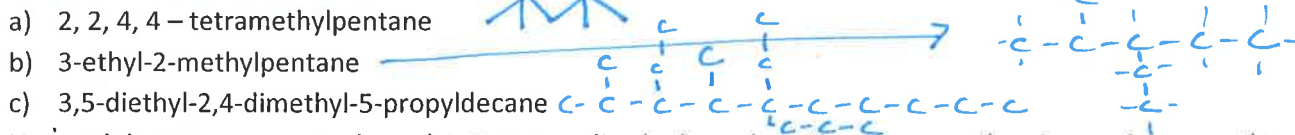
1. Name each compound.



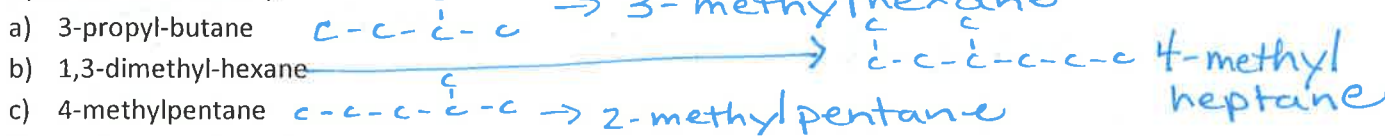
2. Draw a condensed structural diagram for each hydrocarbon.



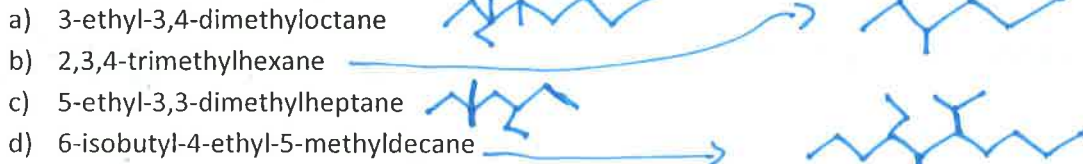
3. Draw the following alkanes:



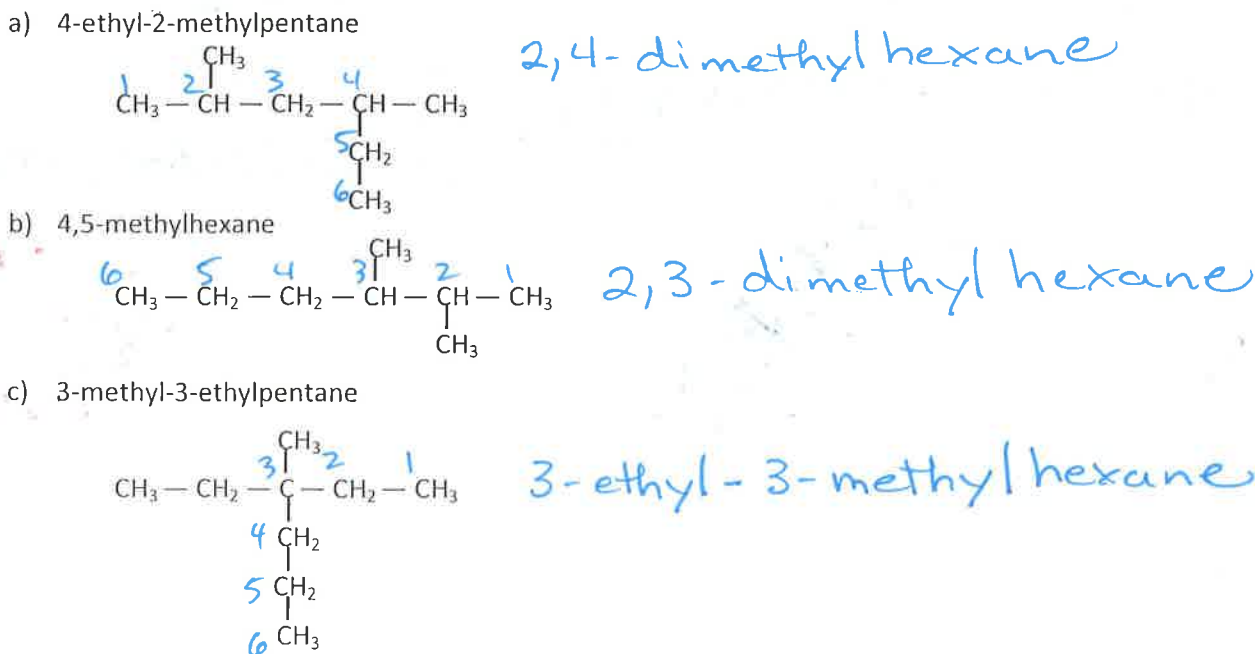
4. Use each incorrect name to draw the corresponding hydrocarbon. Examine your drawing, and rename the hydrocarbon correctly.



5. Draw a line structural diagram for each alkane.



6. Examine the following compounds and their names. Identify mistakes, and correct the names.

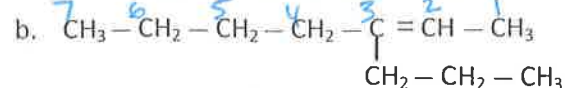


Alkenes

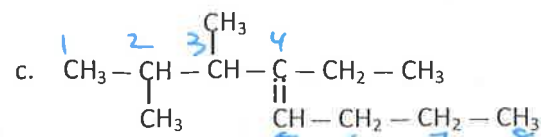
1. Name each hydrocarbon.



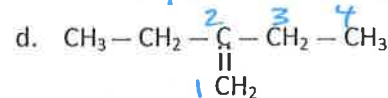
3-hexene



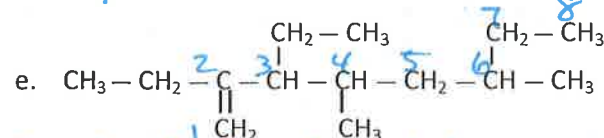
3-propyl-2-heptene



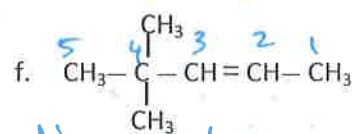
2,3-dimethyl-4-octene



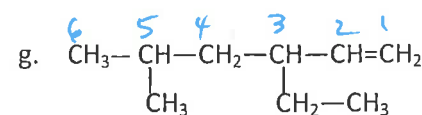
2-ethyl-1-butene



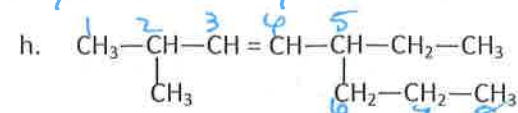
2,3-diethyl-4,6-dimethyl-1-octene



4,4-dimethyl-2-pentene



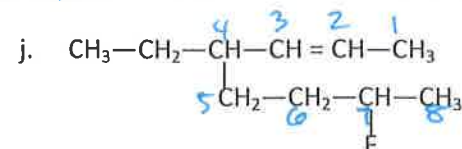
3-ethyl-5-methyl-1-hexene



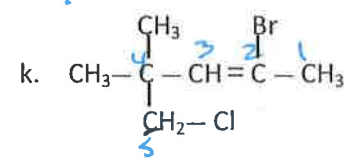
5-ethyl-2-methyl-3-octene



2-chloro-2-butene



4-ethyl-7-fluoro-2-octene



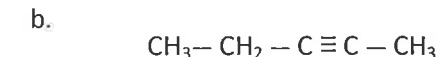
2-bromo-5-chloro-4,4-dimethyl-2-pentene

Alkynes – Naming and Drawing

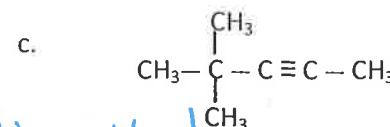
1. Name each alkyne.



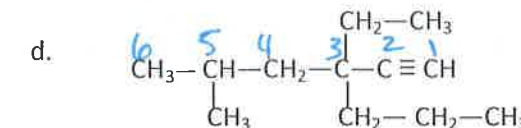
ethyne



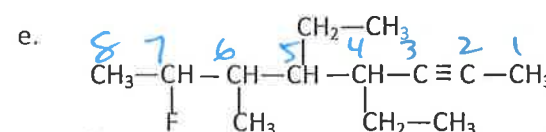
2-pentyne



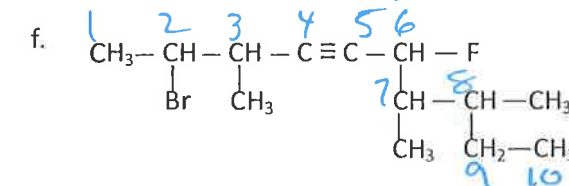
4,4-dimethyl-2-pentyne



3-ethyl-5-methyl-3-propyl-1-hexyne



4,5-diethyl-7-fluoro-6-methyl-2-octyne



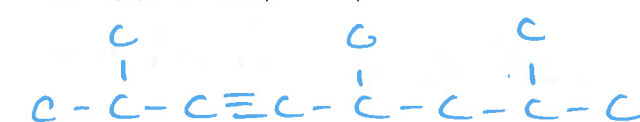
2-bromo-6-fluoro-3,7,8-trimethyl-4-decyne

2. Draw a condensed structural diagram for each compound.

a. 2-propyne X



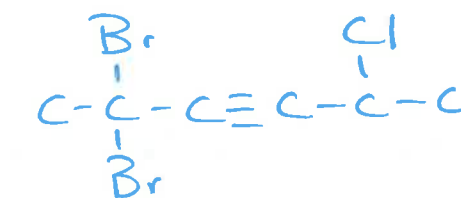
d. 2,5,7-trimethyl-3-octyne



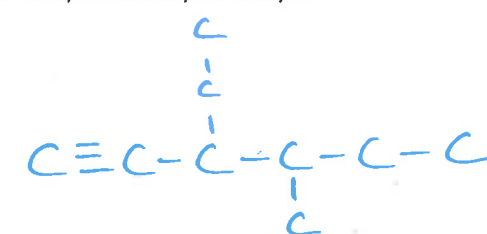
b. 4,5-dimethyl-2-heptyne



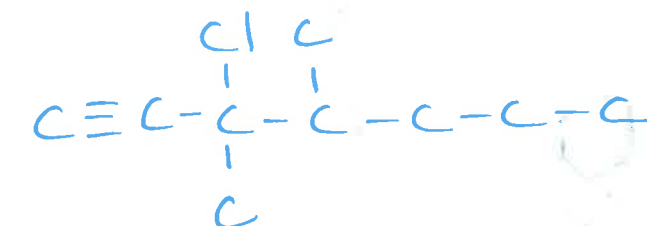
e. 2,2-dibromo-5-chloro-3-hexyne



c. 3-ethyl-4-methyl-1-hexyne



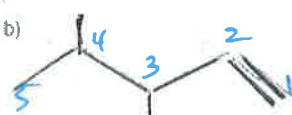
f. 3-chloro-3,4-dimethyl-1-heptyne



2. Name each hydrocarbon.



2-pentene



3,4-dimethyl-1-pentene



2,3-dimethyl-2-butene



5-ethyl-2,4,7-trimethyl-3-octene

3. Draw a condensed structural diagram for each compound.

a. 2-butene



b. 3-heptene



c. 2-methyl-1-butene



d. 3-ethyl-2-pentene



e. 2-methyl-2-heptene



f. 3,4-dimethyl-2-pentene



4. You have seen that alkanes, such as C_5H_{12} , can have isomers. Draw condensed structural formulas for isomers of C_4H_8 . Then name the isomers.

5. Draw and name the cis-trans isomers for C_5H_{10} .

6. Why can 1-butene not have cis-trans isomers? Use structural diagram to explain.

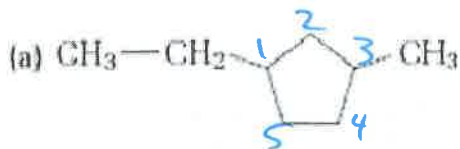
7. Like other isomers, two cis-trans isomers have the same atomic weight. They also yield the same elements when decomposed. How might you distinguish between two such isomers in the lab?

8. C_6H_{12} has four possible pairs of cis-trans isomers. Draw and name all four pairs.

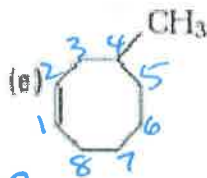
Cyclic Hydrocarbons – naming and drawing

1. Name each compound.

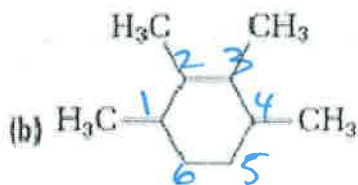
4-methylcyclooctene



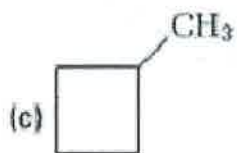
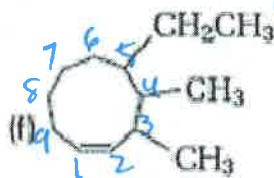
1-ethyl-3-methylcyclopentane



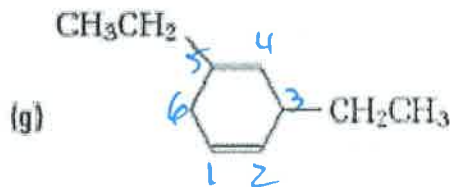
5-ethyl-3,4-dimethylcyclononene



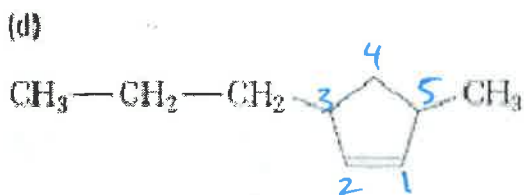
1,2,3,4-tetramethylcyclohexane



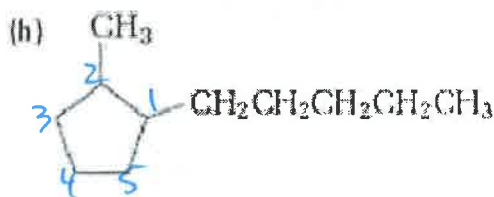
methylcyclobutane



3,5-diethylcyclohexene



5-methyl-3-propylcyclopentene



2-methyl-1-pentylcyclopentane

2. Draw a condensed structural diagram for each compound.

(a) 1,2,4-trimethylcycloheptane

(e) 1,3-ethyl-2-methylcyclopentane

(b) 2-ethyl-3-propylcyclobutene

(f) 4-butyl-3-methylcyclohexene

(c) 3-methylcyclopentene

(g) 1,1-dimethylcyclopentane

(d) cyclopentene

(h) 1,2,3,4,5,6-hexamethylcyclohexane

