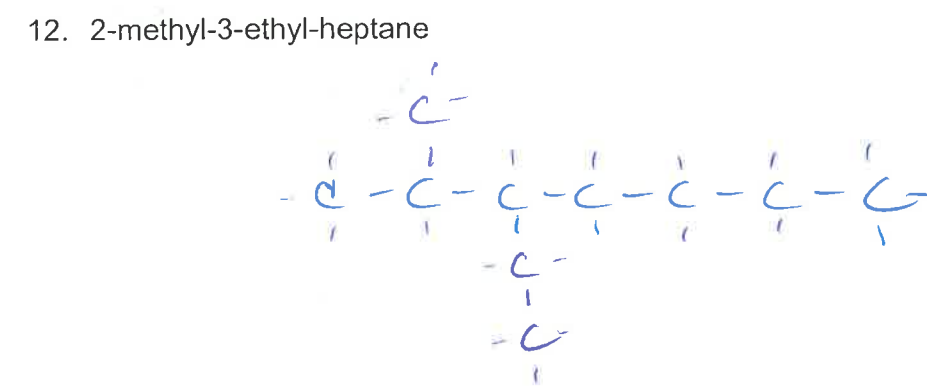
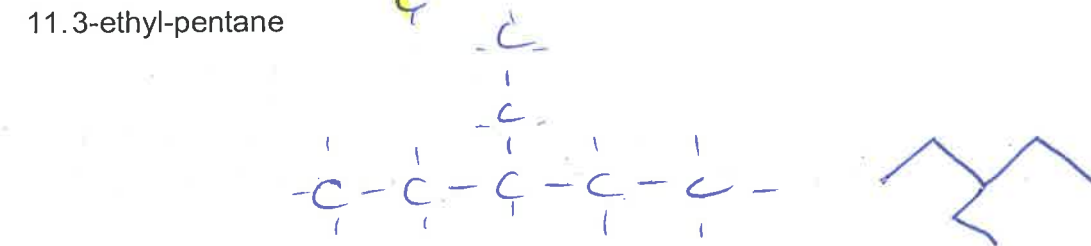
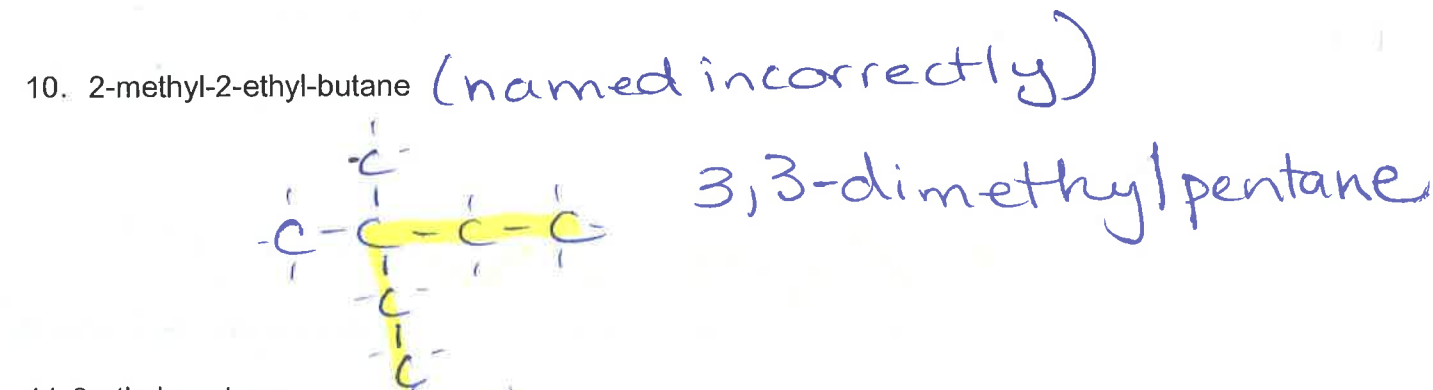
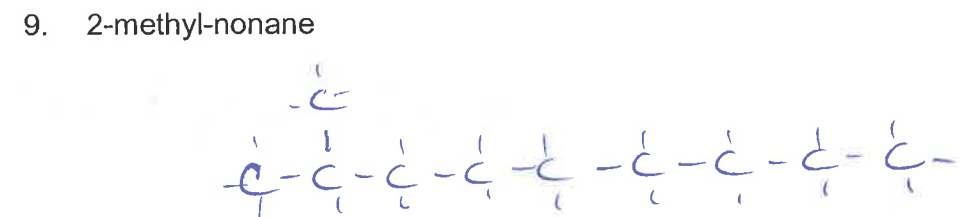
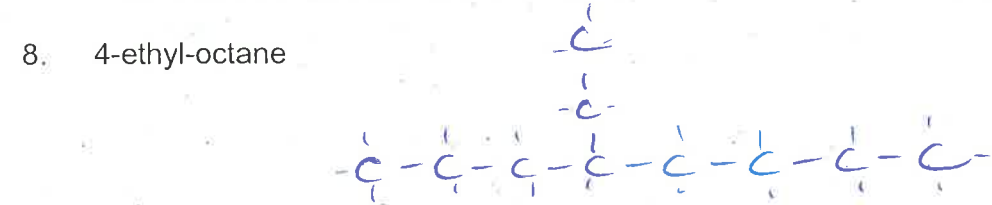


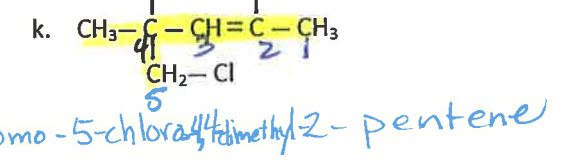
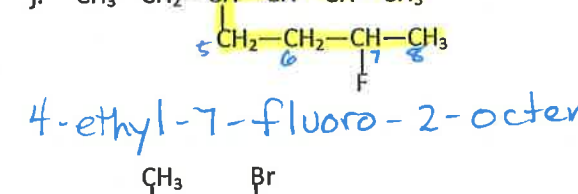
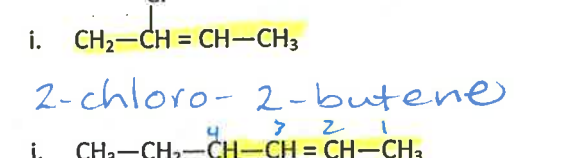
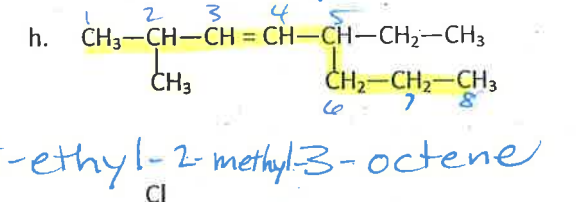
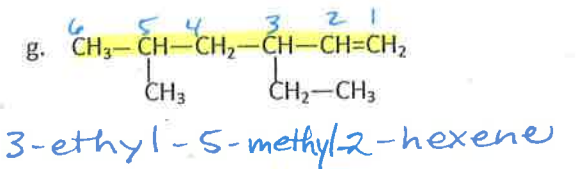
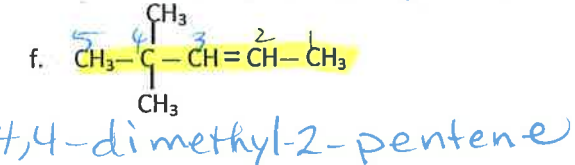
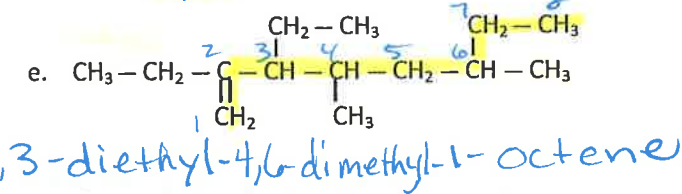
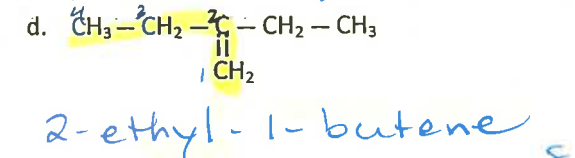
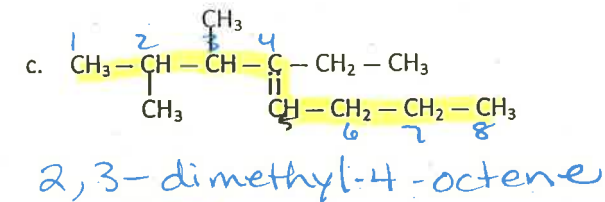
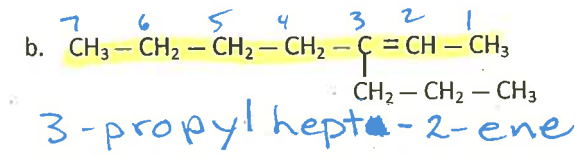
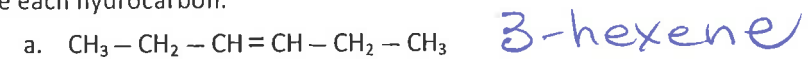
Alkenes — Naming, drawing and reactions

Draw structural formulas for the following molecules. Remember the following:

- Carbons on the end of a chain are attached to three hydrogens
- Carbons in the middle of a chain are attached to two hydrogens
- Carbons that have one branch attached are also attached to one hydrogen
- Carbons that have two branches attached are not attached to any hydrogens.



1. Name each hydrocarbon.


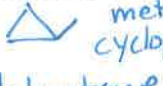


2. Name each hydrocarbon.



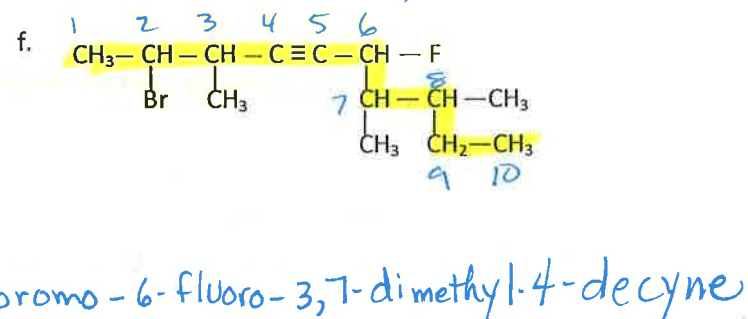
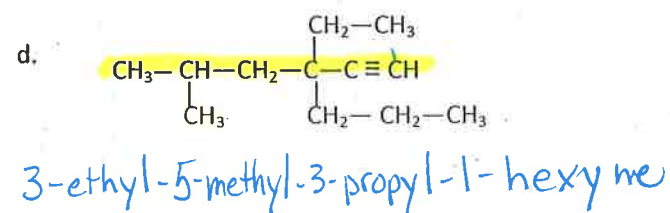
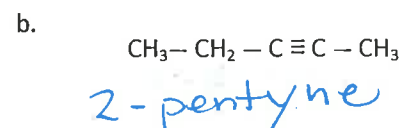
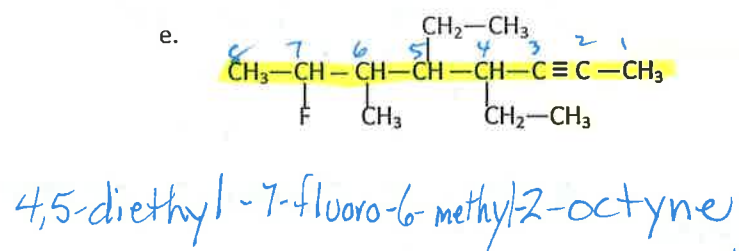
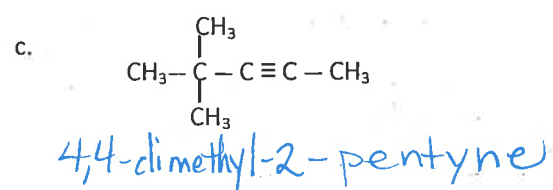
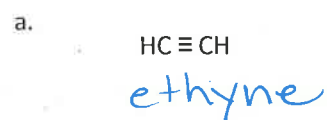
3. Draw a condensed structural diagram for each compound.

- | | | | |
|---------------------------|----------------------------|--|-----------------------------------|
| a. 2-butene | <chem>CC=CC</chem> | g. 4-ethyl-2-methyl-2-hexene | <chem>CCC(C)(CC)C=CC</chem> |
| b. 3-heptene | <chem>CCC=CCC</chem> | h. 5-ethyl-3,4,6-trimethyl-2-octene | <chem>CCC(C)C(C)C=CC(C)CC</chem> |
| c. 2-methyl-1-butene | <chem>CC(C)=CC</chem> | i. 3-ethyl-2,3,4,4-tetramethyl-1-pentene | <chem>CC(C)(C)(C)C=CC(C)CC</chem> |
| d. 3-ethyl-2-pentene | <chem>CCC=CC(C)C</chem> | j. 2-chloro-1-propene | <chem>CC=CCl</chem> |
| e. 2-methyl-2-heptene | <chem>CCC(C)=CCC</chem> | k. 2,3-dibromo-2-pentene | <chem>CCC(Br)=C(Br)CC</chem> |
| f. 3,4-dimethyl-2-pentene | <chem>CCC(C)=CC(C)C</chem> | l. 1-iodo-2-methyl-2-pentene | <chem>CC(C)=CC(I)C</chem> |

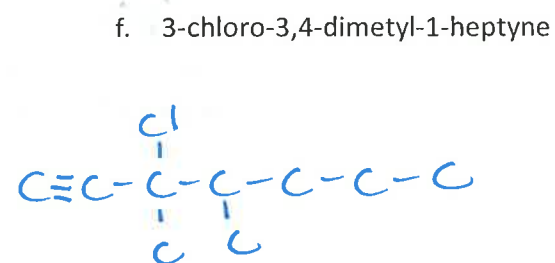
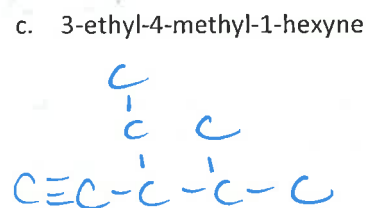
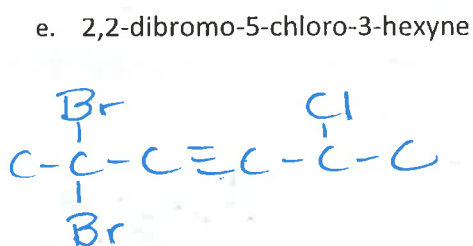
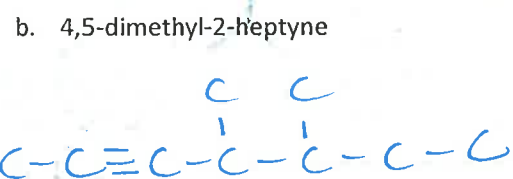
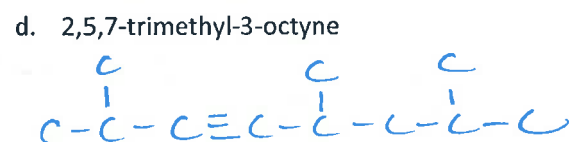
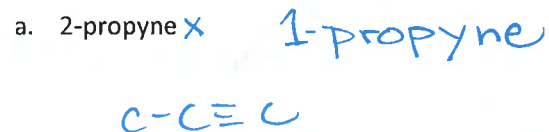
4. You have seen that alkanes, such as C_5H_{12} , can have isomers. Draw condensed structural formulas for isomers of C_4H_8 . Then name the isomers.
 $\text{C}=\text{C}-\text{C}-\text{C}$ **1-butene**
 $\text{C}-\text{C}=\text{C}-\text{C}$ **2-butene**
 $\text{C}=\text{C}-\text{C}$ **methyl propene**
 **cyclobutane**
 **methyl cyclopropane**
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.

Alkynes – Naming and Drawing

1. Name each alkyne.



2. Draw a condensed structural diagram for each compound.



Name _____

Period _____

Naming Alkanes – Worksheet #1

Name the following branched alkanes:

1.	$\begin{array}{c} \text{H}_3\text{C}-\text{CH}-\text{CH}_3 \\ \\ \text{CH}_3 \end{array}$	methylpropane
2.	$\begin{array}{c} \text{H}_3\text{C}-\text{CH}-\text{CH}_3 \\ \\ \text{CH}_2-\text{CH}_3 \end{array}$	(2)-methylbutane
3.	$\begin{array}{cccccccc} \text{H}_3\text{C} & -\text{CH}_2 & -\text{CH}_2 & -\text{CH} & -\text{CH}_2 & -\text{CH}_2 & -\text{CH}_3 \\ & & & & & & \\ & & & \text{CH}_2-\text{CH}_3 & & & \end{array}$	4-ethylheptane
4.	$\begin{array}{ccccccc} & & & \text{CH}_2-\text{CH}_3 & & & \\ & & & & & & \\ 7 & 6 & 5 & 4 & 3 & 2 & 1 \\ \text{H}_3\text{C} & -\text{CH}_2 & -\text{CH}_2 & -\text{CH} & -\text{CH} & -\text{CH}_2 & -\text{CH}_3 \\ & & & & & & \\ & & & \text{CH}_3 & & & \end{array}$	3-ethyl-4-methylheptane
5.	$\begin{array}{ccccccc} 1 & 2 & 3 & 4 & 5 & & \\ \text{H}_3\text{C} & -\text{CH}_2 & -\text{CH} & -\text{CH}_2 & -\text{CH} & -\text{CH}_2 & -\text{CH}_3 \\ & & & & & & \\ & & \text{CH}_3 & & \text{CH}_2-\text{CH}_2-\text{CH}_3 & & \end{array}$	5-ethyl-3-methyloctane
6.	$\begin{array}{ccccccc} 8 & 7 & 6 & 5 & 4 & & \\ \text{H}_3\text{C} & -\text{CH}_2 & -\text{CH}_2 & -\text{CH}_2 & -\text{CH}_2 & & \\ & & & & & & \\ & & & & \text{C} & -\text{CH}_2 & -\text{CH}_3 \\ & & & & & & \\ & & & & \text{CH}_3 & & \end{array}$	3-butyl-3-methyloctane
7.	$\begin{array}{ccccccc} & & & 7 & 8 & 9 & \\ & & & & & & \\ & & & \text{CH}_2-\text{CH}_2-\text{CH}_3 & & & \\ & & & & & & \\ 6 & 5 & 4 & 3 & 2 & 1 \\ \text{H}_2\text{C} & -\text{CH} & -\text{CH}_2 & -\text{CH} & -\text{CH}_3 \\ & & & & \\ & \text{CH}_3 & & \text{CH}_2-\text{CH}_2-\text{CH}_3 & \end{array}$	6-ethyl-4-methylnonane

(over)