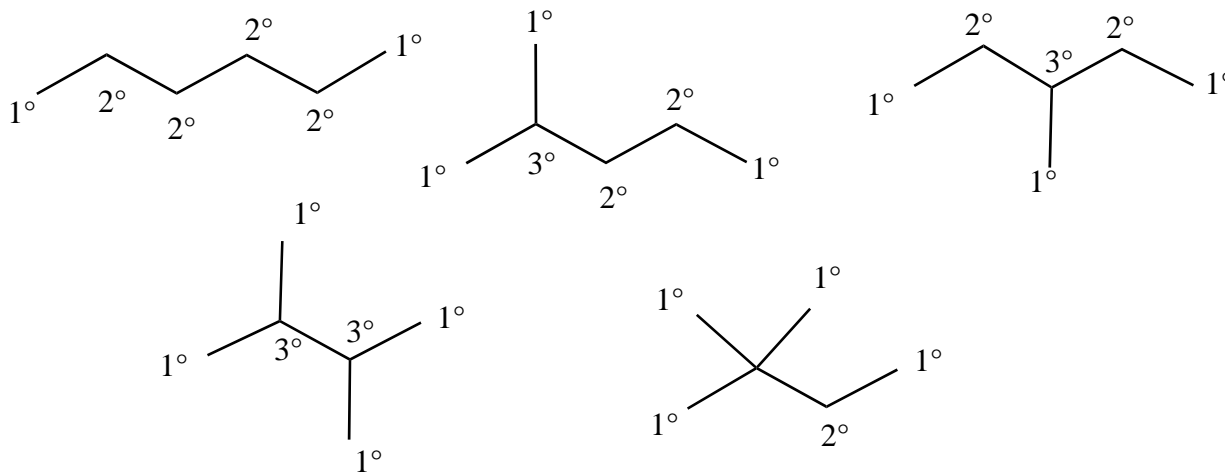


Exercise 14 - Isomerism

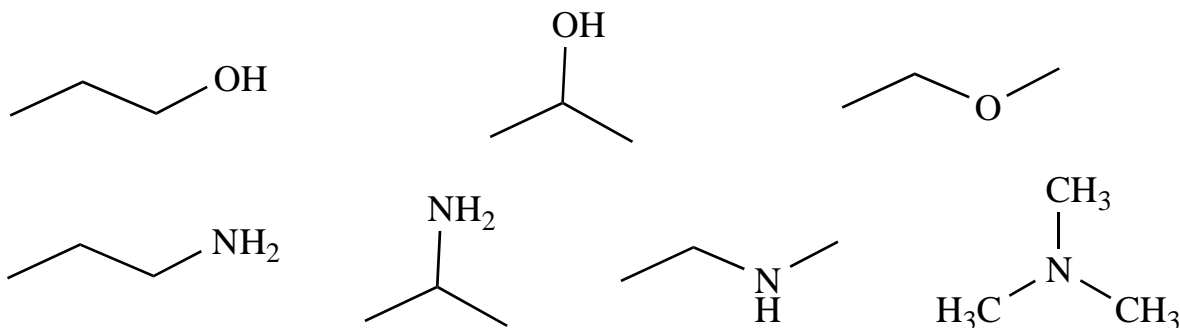
Question One

Draw all 5 of the isomers of hexane: C_6H_{14} , showing only the C atoms. Identify all of the 1° , 2° and 3° carbons.



Question Two

Heteroatoms are no problem. Just remember in CHON Tinkertoy, there are 3 holes in N, 2 in O, 4 in C and 1 in H. Work out the connectivities of the 4 isomers of C_3H_9N and 3 isomers of C_3H_8O .

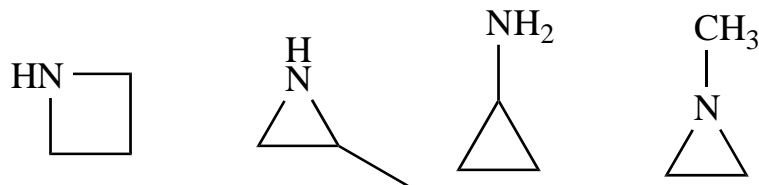


Question Three

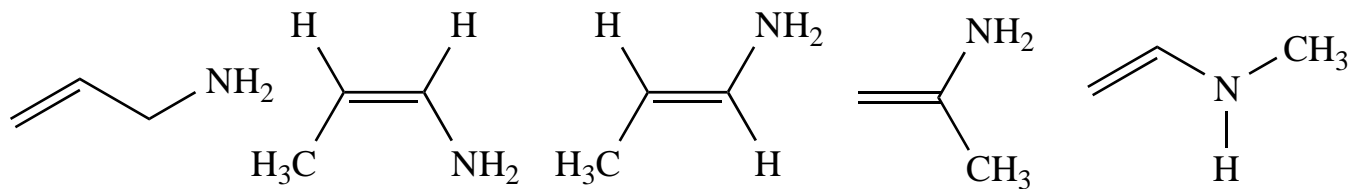
Draw all of the isomers (structural and stereoisomers) having the formula C_3H_7N and C_3H_4O . How many units of unsaturation in each molecule? There are a surprising number of isomers for C_3H_4O .

C_3H_7N

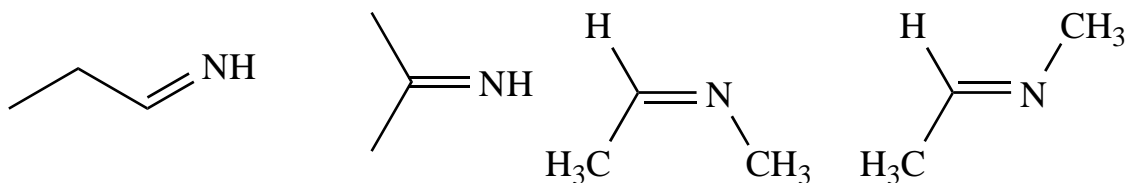
Cyclic compounds:



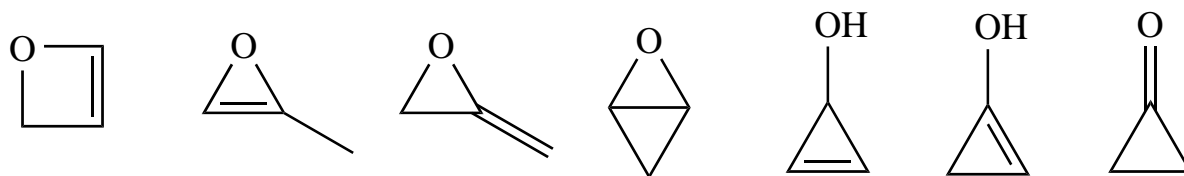
Alkenes



These are examples of the “imine” functional group.



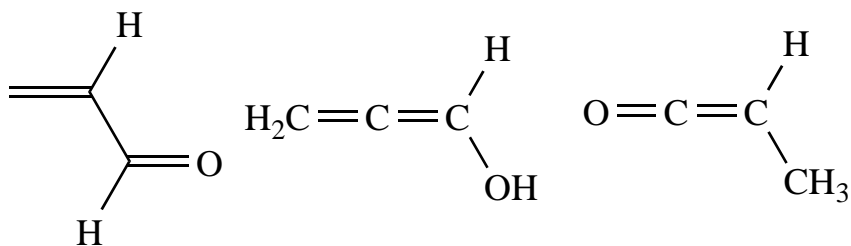
C_3H_4O
Cyclic molecules



Alkynes



Those molecules with two double bonds



Question Four

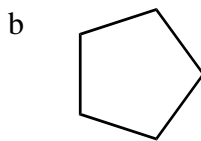
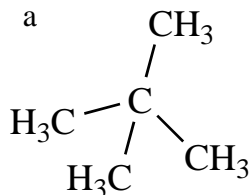
There are more than one answer for some of these.

Give the structure of an organic molecule (carbon and hydrogen only) that has:

a.) more than three carbons and has only primary hydrogens (primary hydrogens are hydrogens attached to a primary carbon, etc.)

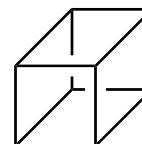
b.) only five carbons and has only secondary carbons

c.) only tertiary hydrogens.



c.) only tertiary hydrogens.

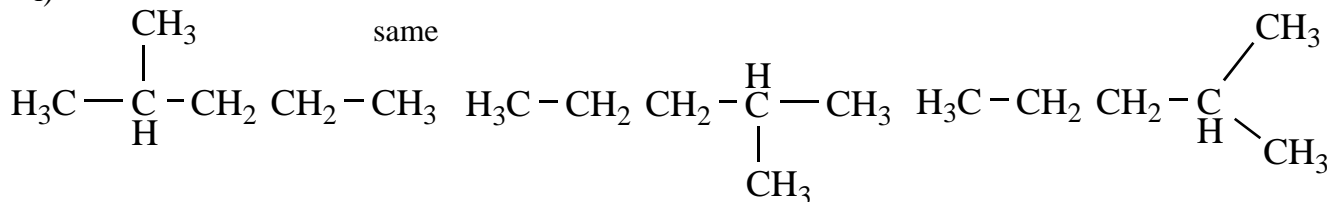
These are prismane and cubane respectively. Both are known.



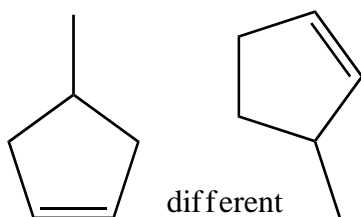
Question Five

In each of the following sets, indicate whether the diagrams are of the same or different molecules.

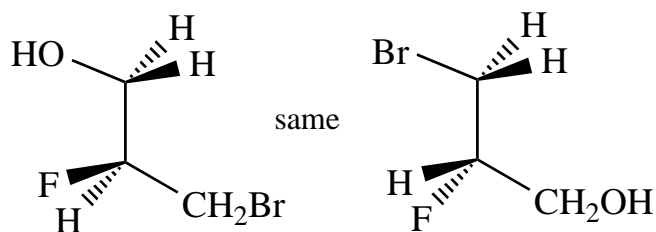
i)



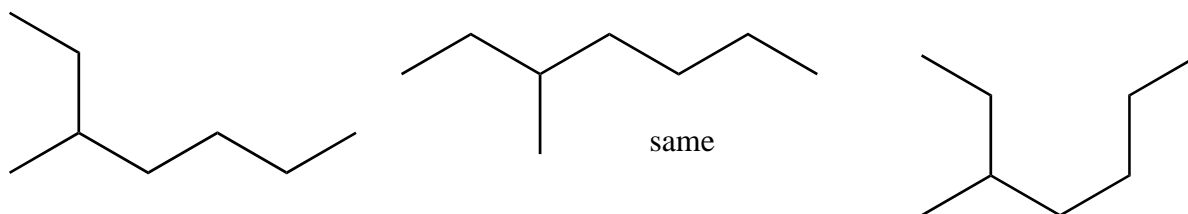
ii)



iii)



iv)



v)

