How to name your molecule

1) Identify longest carbon chain (the parent chain).
   * If multiple competing parent chains, then:
     (a) choose chain with more side chains
     (b) choose chain with substituents with lowest numbers
   * If a ring is present (cyclo-) it is usually the parent chain.
2) Identify all substituents off parent chain.
3) Number carbons of the parent chain from end that gives the substituents the lowest numbers.
   * If multiple of the same substituent, use prefixes: di-, tri-, tetra-, etc.
4) If more than one substituent, put them in alphabetical order by the root of the substituent (butyl, ethyl, methyl, etc.).

1. Determine and name the constitutional isomers for each alkane.

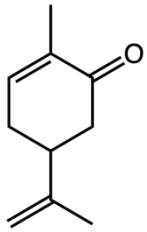
   A) C_5H_{12}

   B) C_6H_{14}

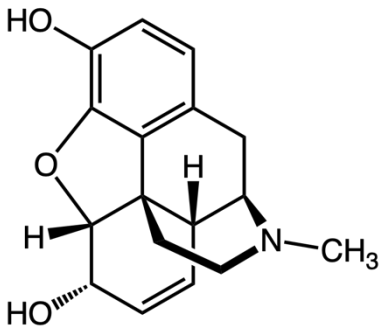
2. Carvone (shown to the right) is a natural product found in spearmint oil.

   A) Label the alkenes as *cis* or *trans*, if applicable.

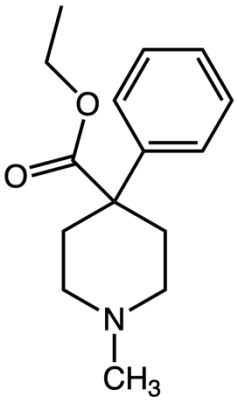
   B) Does carvone exhibit geometric isomerism?
   If so, draw the other geometric isomer. If not, why?



3. Given below are two pain medications: morphine and Demerol.



Morphine



Demerol

A) Circle all the chiral centers in morphine.

B) Both morphine and Demerol interact with receptors similarly because they share similar structural features. In particular, one portion of both molecules is flat/planar and another portion of both molecules binds to the receptor site.

Identify the two portions of the molecules described above for both morphine and Demerol.

4. Starting with ethane as the only source of carbons, suggest a sequence of reactions likely to produce ethyl acetate ($CH_3CO_2CH_2CH_3$, shown to the right).