STRUCTURAL ISOMERISM

1. The best way of doing this is to draw the longest chain horizontally. Obviously there can only be one 6-carbon chain. Then try 5-carbon chains, and when you have found as many possibilities as you can there, try again with 4-carbon chains. There are no isomers in which a 3-carbon chain is the longest chain.

   You should have found:

   $CH_3CH_2CH_2CH_2CH_2CH_3$

   $CH_3CH(CH_3)CH_2CH_2CH_3$ $\qquad$ $CH_3CH_2CH(CH_3)CH_2CH_3$

   $CH_3C(CH_3)_2CH_2CH_3$ $\qquad$ $CH_3CH(CH_3)CH(CH_3)_2$

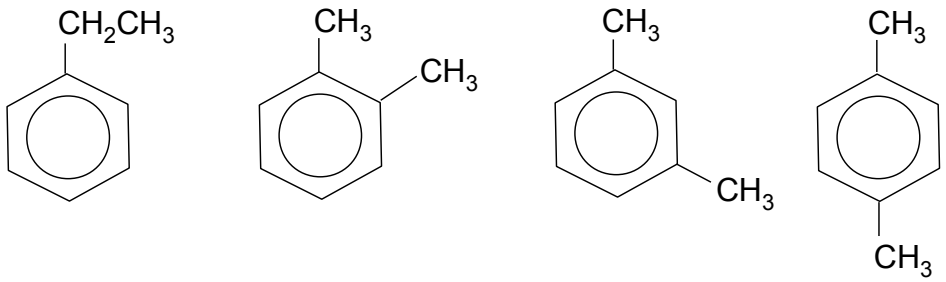
   If you think you have found any more, you have got duplicates. In the last of these structures, for example, it obviously doesn't matter whether your two side groups are both pointing up or down or one each way (as here). They are all the same, simply rotated around the central carbon-carbon bond.

   Look carefully at any others that you think you have found, and search for the longest possible carbon chain, and then bend your structure so that this longest chain becomes horizontal. It will the same as one of the structures above.

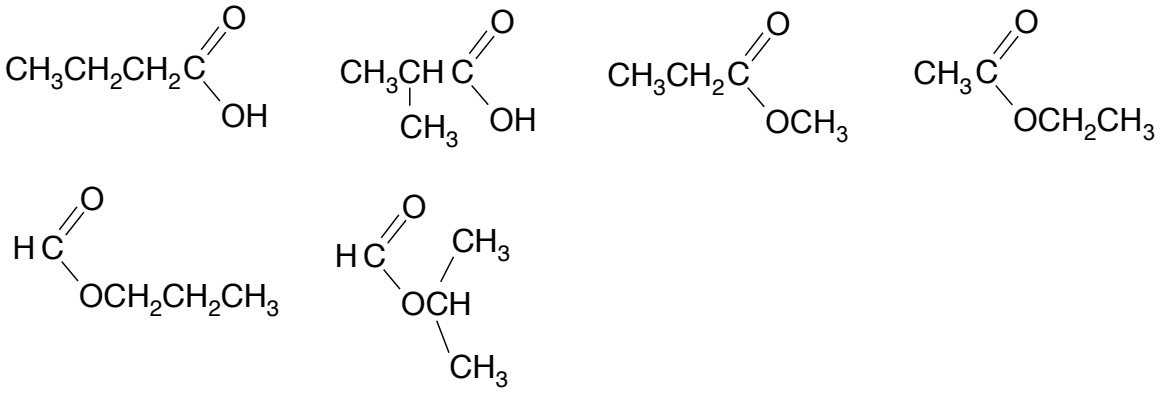
2. $CH_3CH_2CH_2OH$ $\qquad$ $CH_3CH(OH)CH_3$ $\qquad$ $CH_3CH_2-O-CH_3$

   You may never have come across the third of these (a type of ether), but you shouldn't assume that a single oxygen has to be in an -OH group. If everything is showing the correct number of bonds, then it is probably a valid structure. Well done if you got the third one!

3. A benzene ring has 6 carbons, and so there are 2 others to account for which must be attached to the ring. The possibilities are:

4.



It would be easy to forget to include the last two. The bonds to the two CH_3 groups in the last one are just bent a bit out of the vertical so that the top one doesn't get confused with the oxygen in the C=O bond.

Well done if you got them all first time!