

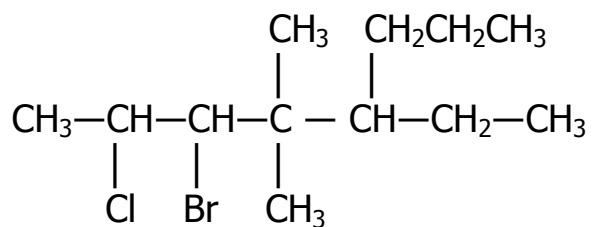
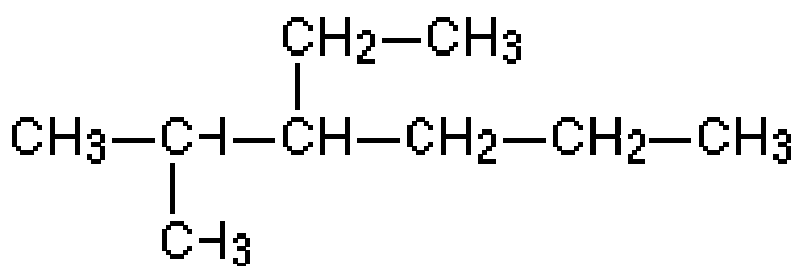
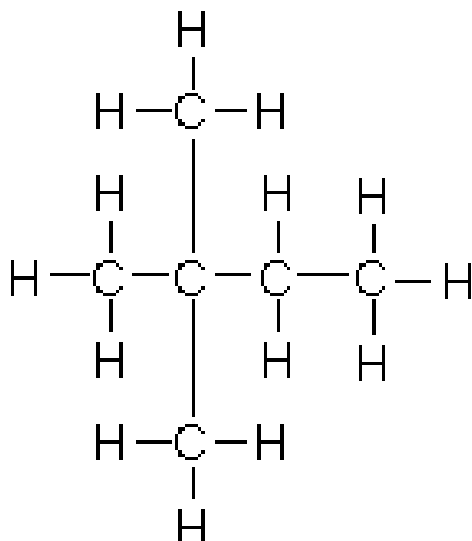
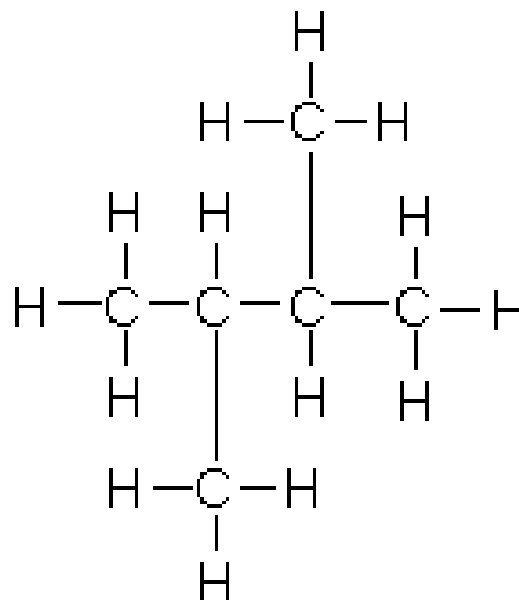
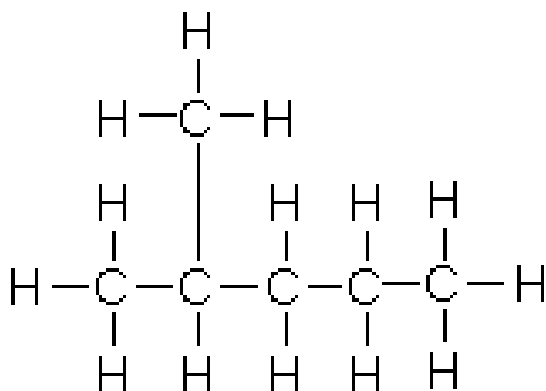
## The IUPAC System for Naming Organic Compounds

You need to be able to translate the name of an organic compound into its structural formula.  
You need to be able to name a compound from its given structural formula.

| Hydrocarbon Stems |      |     |      |     |      |     |      |     |     |      |
|-------------------|------|-----|------|-----|------|-----|------|-----|-----|------|
| # carbons         | 1    | 2   | 3    | 4   | 5    | 6   | 7    | 8   | 9   | 10   |
| Stem name         | meth | eth | prop | but | pent | hex | hept | oct | non | deca |

- Rule 1:** Find the longest unbranched carbon chain. This chain is called the parent chain, and its name is the major part of the compound's name.
- Rule 2:** Number the carbons in the parent chain. This will allow us to specify where side chains and substitutions are. Numbering is consecutive and the starting place is the carbon that gives the lowest numbers to the carbons with side chains. (See Rule 8)
- Rule 3:** Name the side chains as alkyl groups (methyl, ethyl, propyl, butyl, etc.).
- Rule 4:** If a group appears more than once, use a prefix (di-, tri-, ect.). Use a carbon number to indicate the position of each group.
- Rule 5:** Name the attached groups, use prefixes as required in Rule 4. Identify the location of each group by the carbon number in the parent chain to which it is attached.
- Rule 6:** Name other substituted groups and give the carbon number in the parent chain.
- Rule 7:** Arrange substituted groups as follows:  
First: Halogens (in alphabetical order)  
Second: Alkyl groups (in alphabetical order)  
Finally: Name the parent chain.
- Rule 8:** Priority for numbering the carbons; Start counting carbons as #1, #2, #3, etc., starting closest to the following;  
Functional group  
Double or triple bond  
Halogen substitutes on parent chain  
Alkyl group branching off parent chain
- Rule 9:** Alphabetize halide and alkyl groups ignoring any di, tri, ect.

Use the IUPAC system to name and draw these compounds.



Answers: 2-methylpentane, 2,3dimethylbutane, 2,2dimethylbutane, 3ethyl,2methylhexane