Name _____ Date _____ Class _____

Chapter 29

RETEACHING

ALKANES

The alkanes are straight or branched-chain hydrocarbons in which the carbon atoms are connected by single covalent bonds. In each alkane molecule, the number of hydrogen atoms is two more than twice the number of carbon atoms; thus, the general formula for alkanes is C_nH_{2n+2}.

In naming specific alkane molecules, the following rules apply:

1. Identify the longest continuous chain of carbon atoms and name it according to the number of atoms it contains.
2. Identify all branches attached to the main chain and name each according to the number of carbon atoms it contains.
3. Determine the position of each branch counting from the end of the main chain th gives the first branch the lowest number.
4. When there is more than one of the sa type of branch, use the prefixes *di-*, *t tetra-*, and so on to show the number of tim that branch occurs.
5. List the names of the branches in th respective positions in alphabetical ord followed by the name of the main chain.

In drawing structural formulas for alkan the same basic rules apply.

1. Apply the rules listed above to name each of the following alkanes:

a. $CH_3–CH(CH_3)–CH(CH_3)–CH_2–CH_3$

2,3-dimethylpentane

b. $CH_3–CH(CH_3)–CH_2–C(CH_3)(CH_3CH_2)–CH(CH_3)–CH_2–CH_3$

5-ethyl-2,4,4-trimethylheptane

2. Draw the structural formula for each of the following:

a. 2,2-dimethyl-4-ethylhexane

b. 3,5-diethyl-2-methyloctane

c. 5-butyl-4,4-dimethyl-3-ethyl-7-propyldecane