

Name: _____

Block: _____

Date: _____

Chemistry 11

Naming Alkanes Key

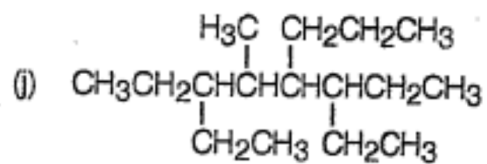
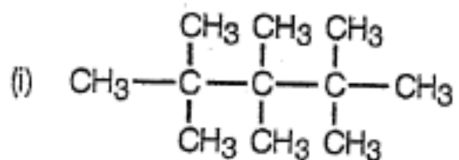
Assignment

1. a. 7 carbons, heptane b. 7 carbons, heptane c. 8 carbons, octane d. 8 carbons, octane
2. a. 3-methylhexane b. 4-ethylheptane c. 3-ethyloctane d. 2-methylhexane
e. 4-methylnonane f. 3-methylheptane

3. (a) $\text{CH}_3\text{-CH}_2\text{-}\underset{\text{CH}_3}{\text{CH}}\text{-CH}_2\text{-CH}_2\text{-CH}_3$ (b) $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-}\underset{\text{CH}_3\text{-CH}_2}{\text{CH}}\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-CH}_3$
- (c) $\text{CH}_3\text{-}\underset{\text{CH}_3}{\text{CH}}\text{-CH}_2\text{-CH}_2\text{-CH}_3$ (d) $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-}\underset{\text{CH}_3\text{-CH}_2\text{-CH}_2}{\text{CH}}\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-CH}_3$
- (e) $\text{CH}_3\text{-CH}_2\text{-}\underset{\text{CH}_3\text{-CH}_2}{\text{CH}}\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-CH}_3$ (f) $\text{CH}_3\text{CH}_2\text{CH}_2\text{CH}_2\underset{\text{CH}_3\text{CH}_2\text{CH}_2}{\text{CH}}\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$

4. a. the longest chain is actually heptane and it was numbered backwards
b. the longest chain is actually hexane
c. the second carbon from the left should only have 2 hydrogens attached
d. the central carbon is making 5 bonds, so should not have a hydrogen attached

5. (a) $\text{CH}_3\underset{\text{H}_3\text{C}}{\text{C}}\underset{\text{CH}_2\text{CH}_3}{\overset{\text{CH}_3}{\text{C}}}\text{CH}_2\text{CH}_2\text{CH}_3$
- (b) $\text{CH}_3\underset{\text{CH}_3}{\overset{\text{CH}_3}{\text{C}}}\text{CH}_2\text{CH}_2\underset{\text{CH}_2\text{CH}_2\text{CH}_3}{\overset{\text{CH}_2\text{CH}_2\text{CH}_3}{\text{C}}}\text{CHCH}_2\text{CH}_2\text{CH}_3$
- (c) $\text{CH}_3\text{CH}_2\underset{\text{CH}_2\text{CH}_3}{\overset{\text{CH}_3}{\text{C}}}\text{CH}\underset{\text{CH}_2\text{CH}_2\text{CH}_3}{\overset{\text{CH}_2\text{CH}_2\text{CH}_3}{\text{C}}}\text{CH}_2\text{CH}_2\text{CH}_3$
- (d) $\text{CH}_3\underset{\text{H}_3\text{C}}{\overset{\text{H}_3\text{C}}{\text{C}}}\text{-}\underset{\text{CH}_3}{\overset{\text{CH}_3}{\text{C}}}\text{CH}_2\text{CH}_3$
- (e) $\text{CH}_3\text{CH}_2\underset{\text{CH}_3\text{CH}_2}{\text{CH}}\text{-}\underset{\text{CH}_2\text{CH}_3}{\text{CH}}\text{CH}_2\text{CH}_3$
- (f) $\text{CH}_3\text{CH}_2\underset{\text{CH}_3}{\overset{\text{CH}_3}{\text{C}}}\text{CH}_2\text{CH}\underset{\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3}{\overset{\text{CH}_3\text{CH}_2}{\text{C}}}\text{-}\underset{\text{CH}_2\text{CH}_3}{\text{CH}}\text{CH}_2\text{CH}_2\text{CH}_3$
- (g) $\text{CH}_3\underset{\text{CH}_3}{\overset{\text{CH}_3}{\text{C}}}\text{CH}_3$
- (h) $\text{CH}_3\underset{\text{CH}_3}{\text{CH}}\text{CH}_2\underset{\text{CH}_2\text{CH}_3}{\text{CH}}\text{CH}_2\text{CH}_2\text{CH}_2\text{CH}_3$



6. a. 3,4-dimethylheptane b. 3,4,4,5-tetraethylheptane c. 2,2,7,7-tetramethyloctane
 d. 3-ethyl-4,5-dimethylheptane e. 4-ethyl-4-methyloctane f. 2,2,5-trimethyloctane
 g. 4,6-dimethylnonane h. decane i. 4,5-diethyl-3,7-dimethylnonane
 j. 3,3,4,5-tetramethyloctane k. 4-ethyl-3-methyl-5-propyloctane
 l. 3,6-diethyl-5,8-dimethyldecane