

Answer all the questions below as fully as you can then check your answers

1. What is a structural isomer?
2. Name the 3 types of structural isomers.
 - a. What is a chain isomer?
3. Complete the table below to show the names of common alkyl groups:

Alkyl group									
formula									

4. What is an alkane?
5. Draw the displayed formula for the following alkanes:
 - a. 2-methylbutane
 - b. 2,2-dimethylpropane
 - c. 2,5-dimethylhexane
 - d. 2,3-dimethylbutane
 - e. n-butane
 - f. 4-ethyl-2,2-dimethylheptane
 - g. 2,2,4-trimethylheptane

6. Draw and name the two chain isomers of the alkane with the molecular formula C_4H_{10} .
7. Pentane has 3 chain isomers. Draw the displayed formula for these 3 isomers of pentane and name them.

Answers

1. What is a structural isomer?

Structural isomers are compounds with the same molecular formula but with different structures.

2. Name the 3 types of structural isomers.

- Chain isomers
- Position isomers
- Functional group isomers

- a. What is a chain isomer?

A chain isomer is formed when there are 2 or more ways of arranging the carbon skeleton in a molecule

3. Complete the table below to show the names of common alkyl groups:

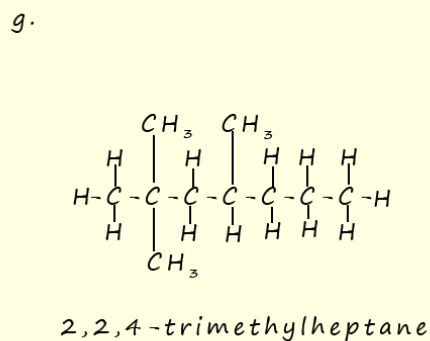
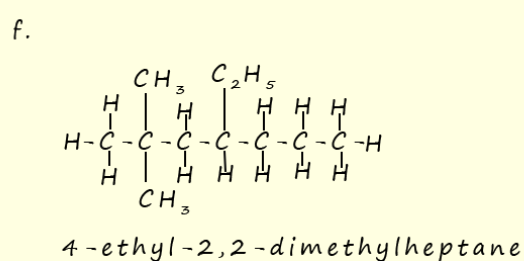
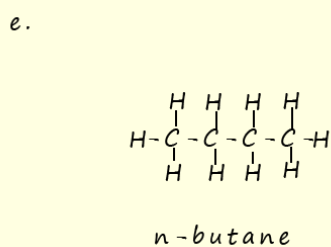
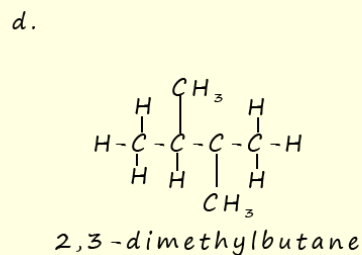
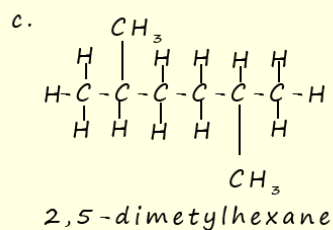
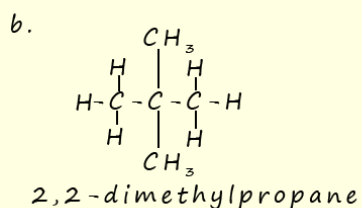
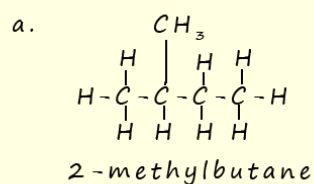
Alkyl group	methyl	ethyl	propyl	butyl	pentyl	hexyl	heptyl	octyl	nonyl
formula	CH_3-	C_2H_5-	C_3H_7-	C_4H_9-	$\text{C}_5\text{H}_{11}-$	$\text{C}_6\text{H}_{13}-$	$\text{C}_7\text{H}_{15}-$	$\text{C}_8\text{H}_{17}-$	$\text{C}_9\text{H}_{19}-$

4. What is an alkane?

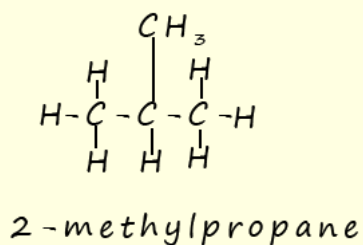
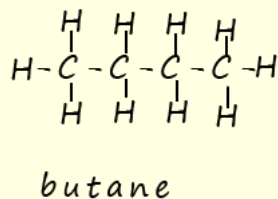
A saturated hydrocarbon

5. Draw the displayed formula for the following alkanes:

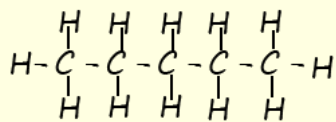
- a. 2-methylbutane b. 2,2-dimethylpropane c. 2,5-dimethylhexane
- d. 2,3-dimethylbutane e. n-butane f. 4-ethyl-2,2-dimethylheptane
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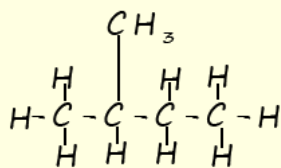
6. Draw and name the two chain isomers of the alkane with the molecular formula C_4H_{10} .



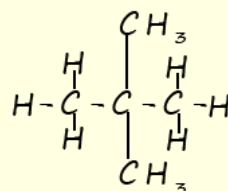
7. Pentane has 3 chain isomers. Draw the displayed formula for these 3 isomers of pentane and name them.



n-pentane or
simply pentane



2-methylbutane



2,2-dimethylpropane