

The Alkanes

Answer all the questions then check your answers

1 What type of compounds are found in crude oil?

2 Which two elements make up hydrocarbons?

3 How many chemical bonds does a carbon atom always make?

4 Alkanes are saturated hydrocarbons. What does this mean?

5. The table opposite is to help you name the alkanes and many other organic molecules. Complete it.

prefix	number of carbon atoms
meth-	1
eth-	
prop-	
but-	
	5
	6
hept-	
	8
non-	9
	10

6. The alkanes belong form a homologous series. What is a homologous series?
7. What is the general formula for the alkanes?
8. Complete the table below. It shows some information on the formula and structure of the alkanes.

alkane	molecular formula	graphical formula/displayed formula
methane		$ \begin{array}{c} \text{H} \\ \\ \text{H}-\text{C}-\text{H} \\ \\ \text{H} \end{array} $
ethane		
	C_3H_8	
	C_4H_{10}	
	C_5H_{12}	

Alkanes

Answers

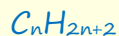
- 1 What type of compounds are found in crude oil? *hydrocarbons*
- 2 Which two elements make up hydrocarbons? *Carbon and hydrogen*
- 3 How many chemical bonds does a carbon atom always make? *4*
- 4 Alkanes are saturated hydrocarbons. What does this mean? *Only single covalent bonds present between the carbon atoms*
5. The table below is to help you name the alkanes and many other organic molecules.
Complete it

prefix	number of carbon atoms
meth-	1
eth-	2
prop-	3
but-	4
pent-	5
hex-	6
hept-	7
oct-	8
non-	9
dec-	10

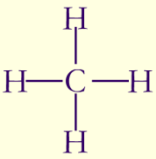
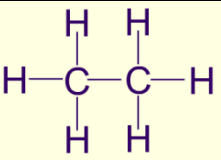
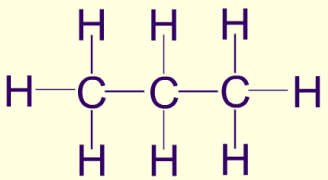
6. The alkanes belong to a homologous series. What is a homologous series?

Series of compounds with the same general formula, chemical and physical properties show a gradual change from one member to the next.

7. What is the general formula for the alkanes?



8. Complete the table below. It shows some information on the formula and structure of the alkanes.

alkane	molecular formula	graphical formula/displayed formula
methane	CH_4	
ethane	C_2H_6	
propane	C_3H_8	

<i>butane</i>	C_4H_{10}	<pre> H H H H H-C - C - C - C-H H H H H</pre>
<i>pentane</i>	C_5H_{12}	<pre> H H H H H H-C - C - C - C - C-H H H H H H</pre>