

14.3 Homologous series

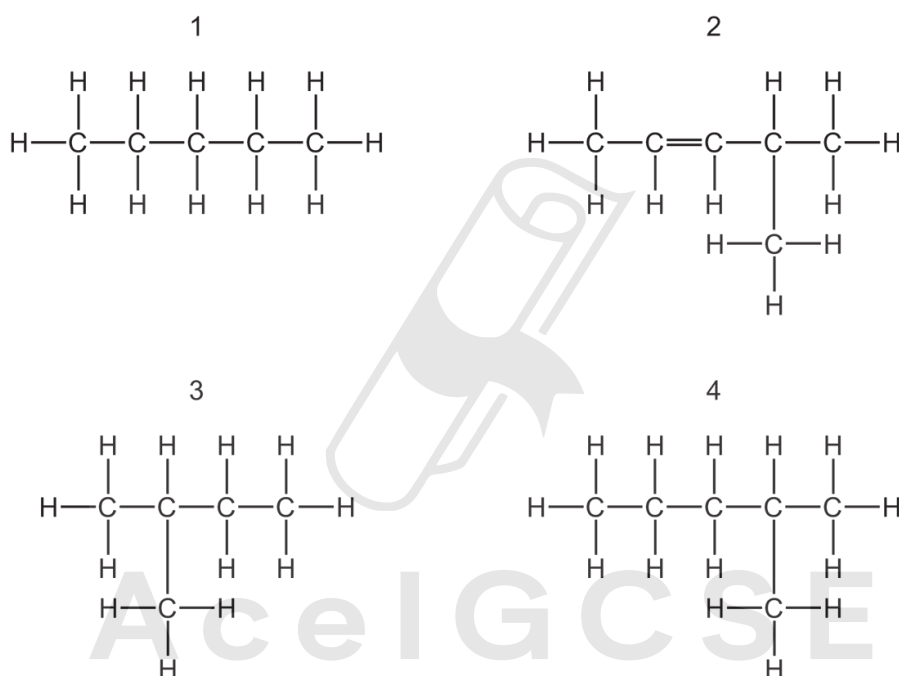
01. 0620_s21_qp_21 Q: 35

Which statement about homologous series and isomerism is correct?

- A Butane and butene are structural isomers.
- B Compounds in the same homologous series have the same general formula.
- C Compounds in the same homologous series have the same molecular formula.
- D Structural isomers have different molecular formulae.

02. 0620_s21_qp_23 Q: 35

The diagrams show the structural formulae of four compounds.

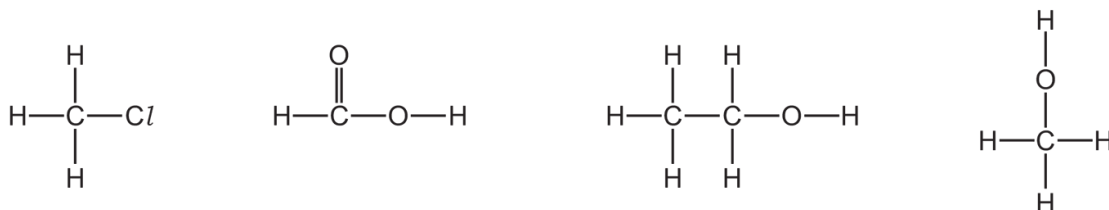


Which two compounds are structural isomers?

- A 1 and 3
- B 1 and 4
- C 2 and 3
- D 2 and 4

03. 0620_w21_qp_22 Q: 35

The structures of four organic molecules are shown.



How many different homologous series are represented by these molecules?

- A 1
- B 2
- C 3
- D 4

04. 0620_w21_qp_23 Q: 36

Which statement describes the members of a homologous series?

- A compounds with the same physical properties
 - B compounds containing the same functional group
 - C compounds containing the same number and type of bonds
 - D compounds obtained from the same raw material
-

05. 0620_w21_qp_23 Q: 37

The structures of two compounds are shown.



Which statements about these compounds are correct?

- 1 They have the same molecular formula.
 - 2 They have similar chemical properties.
 - 3 They are structural isomers.
- A 1 only B 1 and 2 C 2 and 3 D 1 and 3
-

06. 0620_s20_qp_21 Q: 36

Which statement about homologous series is correct?

- A Members of a homologous series have the same structural formula.
 - B Members of a homologous series all have similar chemical properties.
 - C Members of a homologous series all have similar physical properties.
 - D Members of all homologous series are hydrocarbons.
-

14.3. HOMOLOGOUS SERIES

07. 0620_s20_qp_22 Q: 36

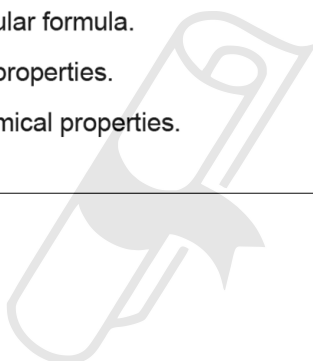
Which statement about compounds in the same homologous series is correct?

- A** They have the same chemical properties because they have the same number of carbon atoms.
 - B** They have the same physical properties because they have the same number of carbon atoms.
 - C** They have different chemical properties because they have different numbers of carbon atoms.
 - D** They have different physical properties because they have different numbers of carbon atoms.
-

08. 0620_s20_qp_23 Q: 36

Which statement about a homologous series is correct?

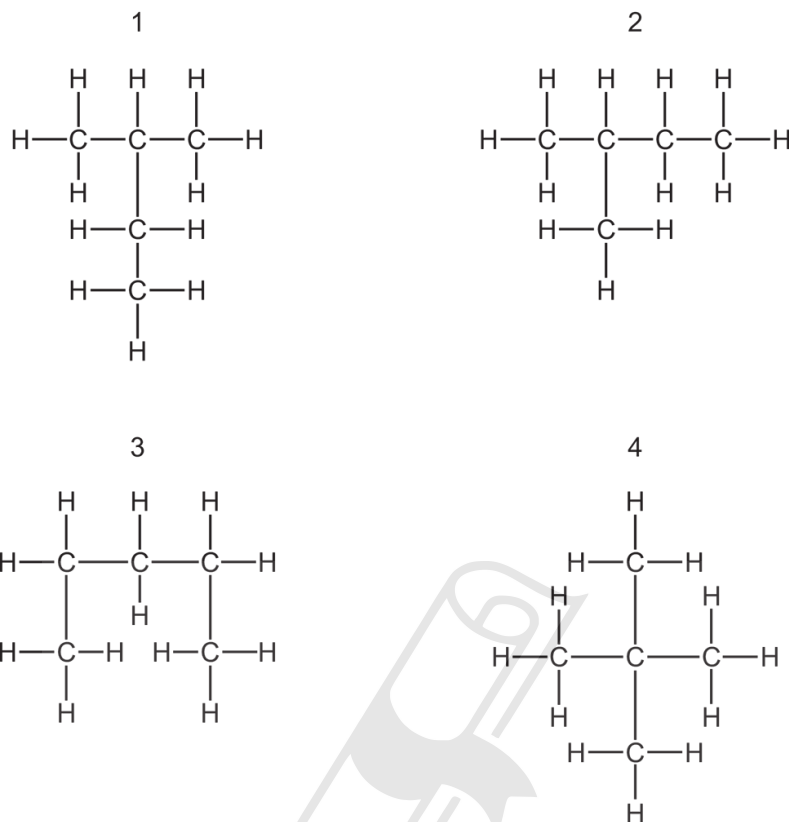
- A** All members have the same general formula.
 - B** All members have the same molecular formula.
 - C** All members have similar physical properties.
 - D** Members show a trend in their chemical properties.
-



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09. 0620_w20_qp_21 Q: 35

The structures of four organic molecules are shown.



Which molecules are structural isomers of structure 1?

- A** 2 and 4 **B** 2 only **C** 3 and 4 **D** 3 only

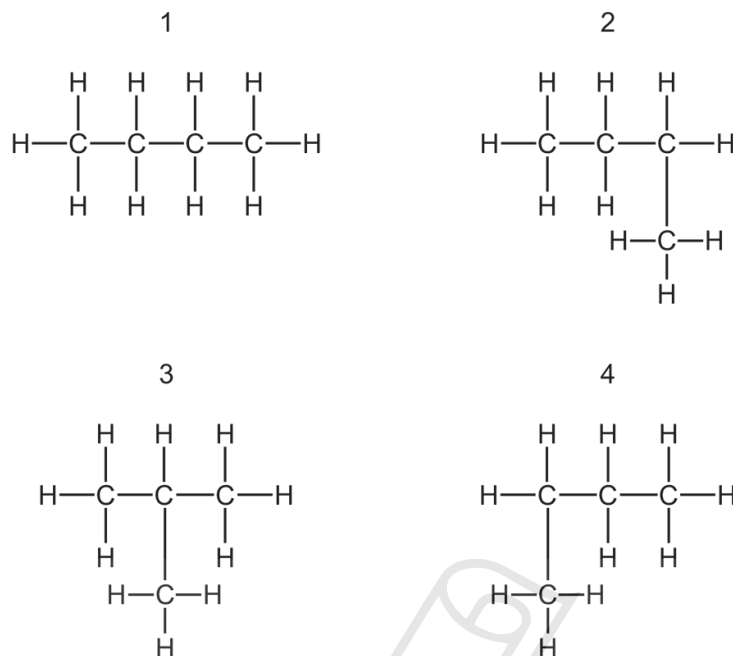
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14.3. HOMOLOGOUS SERIES

10. 0620_w20_qp_22 Q: 36

Which structures are structural isomers of each other?



- A** 1, 2, 3 and 4
B 1, 2 and 4 only
C 1 and 3 only
D 2 and 4 only

11. 0620_m19_qp_22 Q: 37

Which statement about members of a homologous series is correct?

- A** Successive members differ by CH_3 .
B Successive members have a molecular mass that differs by 14.
C They have the same molecular formula.
D They have identical physical properties.

12. 0620_s19_qp_21 Q: 36

Why is ethanol a member of the homologous series of alcohols but propane is **not**?

- A Ethanol has two carbon atoms per molecule but propane has three.
 - B Ethanol can be made from ethene but propane is obtained from petroleum.
 - C Ethanol is a liquid but propane is a gas.
 - D Ethanol contains the same functional group as other alcohols but propane does not.
-

13. 0620_s19_qp_22 Q: 36

Which statement about homologous series is **not** correct?

- A All homologous series are hydrocarbons.
 - B Members of a homologous series have the same functional group.
 - C Members of a homologous series have similar chemical properties.
 - D The alkanes are an example of a homologous series.
-

14. 0620_s19_qp_23 Q: 36

Which statements about homologous series are correct?

- 1 All members have similar chemical properties.
- 2 All members have the same molecular mass.
- 3 Ethane and ethene are members of the same homologous series.
- 4 Ethane and propane are members of the same homologous series.

- A 1 and 3 B 1 and 4 C 2 and 3 D 2 and 4
-

15. 0620_m18_qp_22 Q: 36

Which row identifies compounds in the same homologous series?

	chemical properties	functional group
A	different	different
B	different	same
C	similar	different
D	similar	same

14.3. HOMOLOGOUS SERIES

16. 0620_s18_qp_23 Q: 36

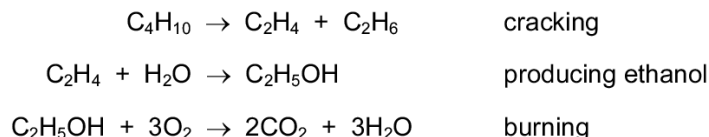
Methane, ethane and propane belong to a family of hydrocarbons called alkanes.

What is the general formula of an alkane?

- A** C_nH_{2n} **B** C_nH_{2n+1} **C** C_nH_{2n-1} **D** C_nH_{2n+2}
-

17. 0620_m17_qp_22 Q: 36

Ethanol is a fuel used in cars. It can be made from petroleum.



Compounds of how many homologous series appear in these equations?

- A** 1 **B** 2 **C** 3 **D** 4
-

18. 0620_s17_qp_21 Q: 36

The diagram shows the structures of two organic molecules.



Which statement about these molecules is **not** correct?

- A** They are both alcohols.
B They both produce carbon dioxide and water when they burn in oxygen.
C They contain different functional groups.
D They have the same general formula.
-

19. 0620_s17_qp_22 Q: 36

Which statement about homologous series is **not** correct?

- A** Alkenes have the same general formula, C_nH_{2n+2} .
B Each member of the homologous series of alkanes differs from the next by CH_2 .
C The members of a homologous series all have similar chemical properties.
D The members of a homologous series all have the same functional group.
-

20. 0620_s17_qp_23 Q: 36

Butane and methylpropane are isomers with molecular formula C_4H_{10} .

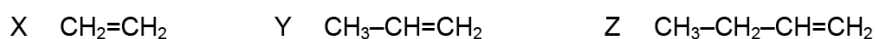
Which statements are correct?

- 1 They have similar chemical properties.
- 2 They have the same general formula.
- 3 They have the same structural formula.

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

21. 0620_w17_qp_21 Q: 37

X, Y and Z are three hydrocarbons.



What do compounds X, Y and Z have in common?

- 1 They are all alkenes.
- 2 They are all part of the same homologous series.
- 3 They all have the same boiling point.

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

22. 0620_m16_qp_22 Q: 37

The statements below are about the alcohol homologous series.

The alcohols have the same1..... formula.

The alcohols have2..... chemical properties because they have the same3..... .

The melting points of the alcohols4..... as the number of carbon atoms increases.

Which words correctly complete gaps 1–4?

	1	2	3	4
A	general	different	functional group	decrease
B	general	similar	electronic structure	increase
C	general	similar	functional group	increase
D	molecular	similar	functional group	increase

23. 0620_s16_qp_23 Q: 36

Which compound does **not** belong to the same homologous series as the other three compounds?

A CH_3OH **B** C_2H_5COOH **C** C_2H_5OH **D** $C_7H_{15}OH$

SN	Paper	Q. No.	Answer
01	0620_s21_qp_21	35	B
02	0620_s21_qp_23	35	A
03	0620_w21_qp_22	35	C
04	0620_w21_qp_23	36	B
05	0620_w21_qp_23	37	D
06	0620_s20_qp_21	36	B
07	0620_s20_qp_22	36	D
08	0620_s20_qp_23	36	A
09	0620_w20_qp_21	35	C
10	0620_w20_qp_22	36	C
11	0620_m19_qp_22	37	B
12	0620_s19_qp_21	36	D
13	0620_s19_qp_22	36	A
14	0620_s19_qp_23	36	B
15	0620_m18_qp_22	36	D
16	0620_s18_qp_23	36	D
17	0620_m17_qp_22	36	C
18	0620_s17_qp_21	36	C
19	0620_s17_qp_22	36	A
20	0620_s17_qp_23	36	B
21	0620_w17_qp_21	37	B
22	0620_m16_qp_22	37	C
23	0620_s16_qp_23	36	B

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