**Homologous series and addition reactions**

**To be completed in your jotters and handed in to me at the end of the lesson on Tuesday 6 September.**

1. Given two molecular formulae C4H10 and C4H8;

a) Select the compound which could be:

i) an alkane

ii) a cycloalkane

iii) an alkene

b) In each case, draw one possible structure to show how your choice is correct.

2. State the family of hydrocarbons to which the following compounds belong:

a) CH3CH2CH3

b) CH3CH=CH2

3. Name the following compounds (draw them if it helps):

a) b)

  

c) d)

 

e) CH3CH(CH3)CH3 f) CH3CHBrCH2Br

g) CH2=CHCH2CH3 h) CH3CH=C(CH3)CH3

4. Draw the structures of the following compounds:

a) methylbutane b) cyclohexane

c) but-1-ene d) hex-3-ene

e) 3-chlorobut-1-ene f) 1,1-dichloropropane

g) 2,2,4-trimethylheptane h) pent-2-ene

5. Addition reactions:

1. Pent-1-ene reacts with chlorine to form 1,2-dichloropentane.

Draw the structural formulae to show how the chlorine molecule reacts with pent-1-ene.

Name this type of reaction

1. But-1-ene reacts with hydrogen in an addition reaction.

Write the molecular formula of the product formed in this reaction.

To which homologous series does the product belong to?

But-1-ene also reacts with steam in an addition reaction.

Draw the structural formulae to show how the water molecule reacts with but-1-ene.

Give the name for the molecule produced in the reaction.

6. Draw the five structural isomers with the formula C6H14 and name them.