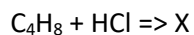


Friday Worksheet

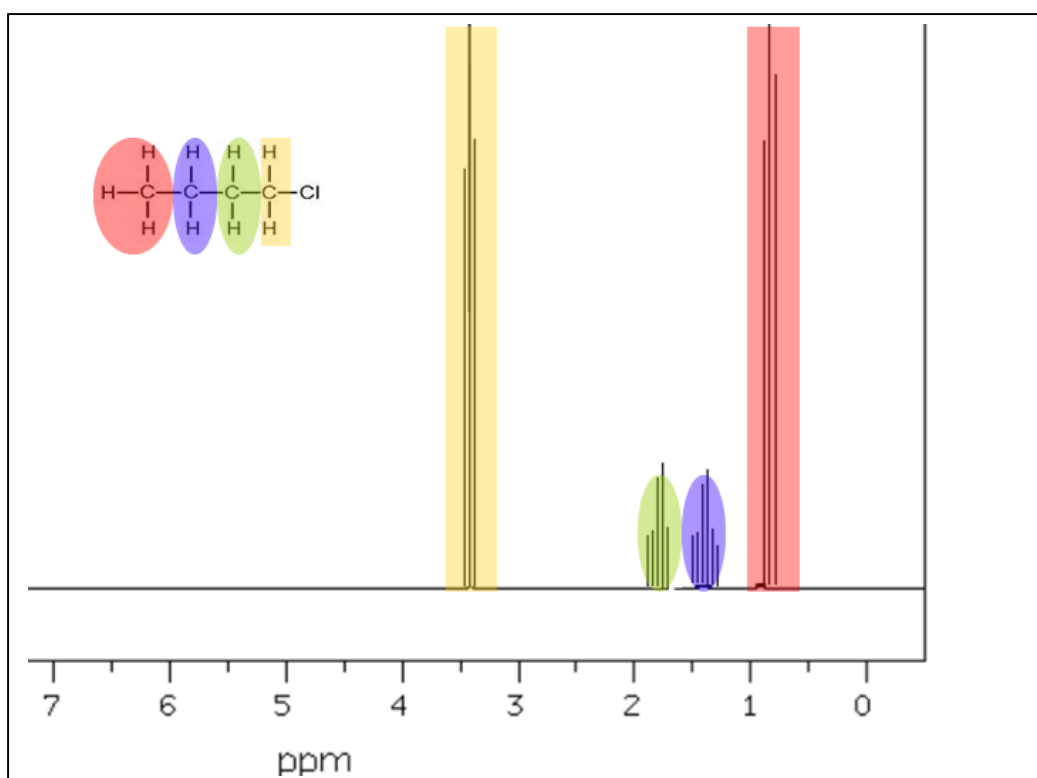
Name:

Organic worksheet 4

- 1) A straight chain alkene with the molecular formula C_4H_8 reacted with HCl according to the equation below.

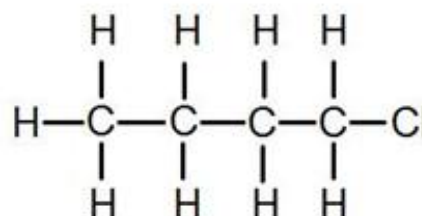


- a) Give the semi-structural formulae and the systematic names of all the possible isomers of X.

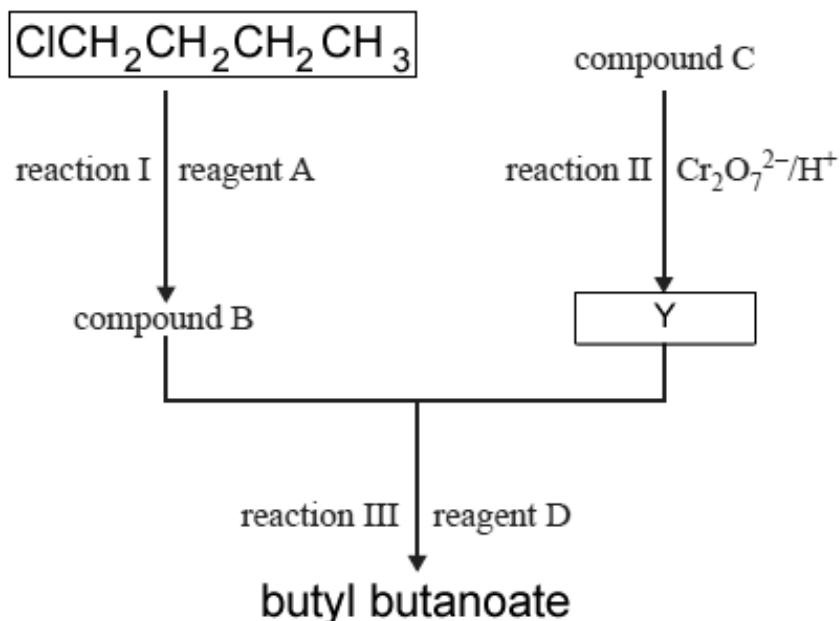


- b) Above is the 1H NMR of X. Identify the isomer and draw its structural formula.

1-chlorobutane



2) The reaction pathway shown below produces butyl butanoate



- What is reagent A? (OH^-) aq
 - What is the systematic name of compound B? Butanol or butan-1-ol
 - What is the systematic name for compound C? Butanol or butan-1-ol
 - What type of reaction is reaction III? Condensation or esterification
 - What is the systematic name of compound Y? Butanoic acid
 - What is reagent D? (concentrated) H_2SO_4
 - What type of reaction is reaction I? Substitution
 - What type of reaction is reaction II? Oxidation
- 3) Which of the following statements would apply to compounds that belong to the same homologous series? Give examples
- they have similar physical properties
 - they have similar chemical properties
 - they contain the same functional group
 - they have the same molecular formula but different structures
- Since successive members of a homologous group differ by a CH_2 group they would have different molecular formulae and different physical properties, for example, different boiling temperatures.
- Members of the same homologous series, however, all have the same functional groups, for example all alkenes have a double bond and all carboxylic acids have the carboxyl functional group and hence behave chemically similar.