

Alkenes Quiz

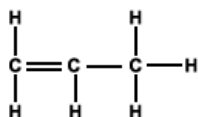
1. For propene give its
a. Molecular formula



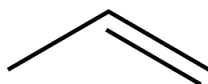
- b. Structural formula



- c. Displayed formula



- d. Skeletal formula

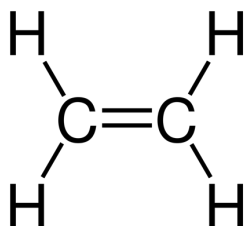


[4]

2. Describe the bonding between the two carbon atoms in ethene.

C=C bond comprises of a π -bond (sideways overlap of adjacent p-orbitals above and below the bonding C atoms) and a σ -bond (overlap of orbitals directly between the bonding atoms)

3. Describe and draw the shape of an ethene molecule, labeling all bond angles.
Trigonal planar, 120°



[2]

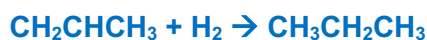
4.
a. Describe a simple chemical test to determine whether an unknown hydrocarbon is an alkene. Describe the result if the test is positive.

Orange bromine water will turn colourless when added to an alkene

[2]

5.

- a. Give the equation for propene reacting with hydrogen. You may use either structural or displayed formulae.



[2]

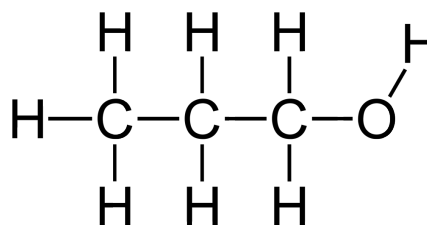
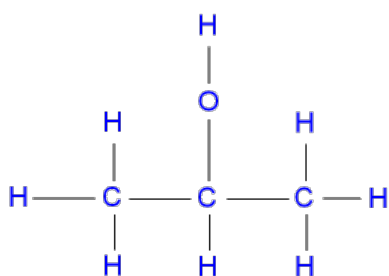
- b. What catalyst is required for this reaction to occur?

Nickel

[1]

6.

- a. Draw the displayed formulae for the two products formed when propene reacts with steam. Label the major product.



[3]

- b. State the catalyst required for this reaction.

Phosphoric acid

[1]

7. Using structural formulae give the equation for the reaction of ethene with hydrogen chloride.



[1]

8. Ethene will react with chlorine to give 1,2-dichloroethane.

- a. By what mechanism does this reaction occur by?

Electrophilic addition

[1]

- b. Write a balanced equation for this reaction using structural formulae.



[1]

c. Describe the reaction mechanism using curly arrows.

[4]

d. Which substance behaves as an electrophile? Explain what is meant by the term electrophile.

Cl₂, an electrophile is an electron pair acceptor.

[2]

9. Give the equation for the polymerisation of fluoroethene and name the product.

[2]

10. Give the equation for the polymerisation of cyclohexene and name the product.

[2]