ALKENES: HALOGENATION

1. a) $CH_2{=}CH_2 + Cl_2 \longrightarrow CH_2ClCH_2Cl$ 1,2-dichloroethane

(You could write the 1,2-dichloroethane as CH_2ClCH_2Cl, but it is always safer to show it as clearly as possible. Make sure that you have written 1,2-dichloroethane and not 1,2-dichloroethene. Your structure must NOT have a double bond between the two carbon atoms. One of the two bonds has been broken to enable the two chlorine atoms to attach.)

b) The two molecules have added together to make a bigger one, without anything being lost during the process.

c) Decreases.

d) It reacts explosively to form carbon and hydrogen fluoride gas.

e) A colourless gas passed through an orange solution would turn it colourless.

2. a) $CH_2{=}CH_2 + Br_2 + H_2O \longrightarrow CH_2BrCH_2OH + HBr$

(You could draw the OH group hanging down like the bromine, but since the compound is named as being related to ethanol, you would more normally show it as a modified version of CH_3CH_2OH. As long as you have shown a bromine attached to one carbon, and an OH group to the other, that's fine. What isn't fine, though, would be to draw a double bond between the two carbons!)

b) The orange solution is decolourised.