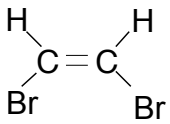
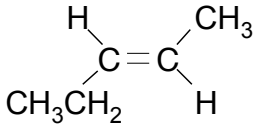
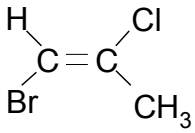
GEOMETRIC ISOMERISM – E/Z NOTATION

1. 

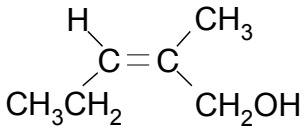
In a simple case like this, the higher priority group is the one with the greater atomic number. At both ends, that is the bromine. The bromines are on the same side, and so this is the Z- isomer.

2. 

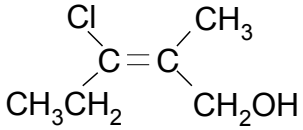
In this very slightly more complicated case, look first at the atoms attached directly to the double bond carbons at each end. At both ends, you have a hydrogen and a carbon. The carbon has the higher atomic number and therefore the higher priority. The higher priority groups are opposite each other, so this is the E- isomer.

3. 

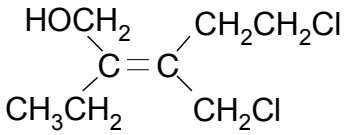
On the left-hand side, the bromine has the higher priority because it has the higher atomic number. On the right-hand side, the chlorine has a higher priority than the carbon in the methyl group. The higher priority groups are on opposite sides, so this is the E- isomer.

4. 

The left-hand side is easy. The carbon-containing group has the higher priority. On the right, each group has a carbon attached directly to the double bond carbon, so you need to think about what is attached to those carbons. The top group only has hydrogens, but the bottom one has an oxygen as well. That has a higher atomic number than the hydrogens, and so that group has the higher priority. The two higher priority groups are on the same side, so this is the Z- isomer.

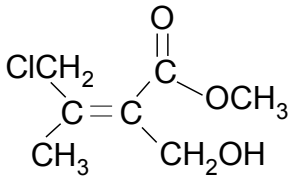
5. 

As in Q4, the CH_2OH group has the higher priority on the right-hand side. On the left, chlorine has a higher priority because it has a higher atomic number than carbon. The two higher priority groups are on opposite sides, so this is the E- isomer.

6. 

On the left-hand side, both groups start off with a CH_2 group attached to the double bond carbon, but the top group has an oxygen attached to this rather than another carbon as in the bottom group. Oxygen has a higher atomic number than carbon, and so the top group has the higher priority.

On the right-hand side, the bottom group has a chlorine and two hydrogens attached to the carbon, whereas the top one has a carbon and two hydrogens. Chlorine has a higher atomic number than carbon, and so the bottom group has the higher priority. The higher priority groups are on opposite sides, so this is the E- isomer.

7. 

On the left-hand side, the chlorine in the top group gives it the higher priority. On the right-hand side, the bottom carbon has an oxygen and two hydrogens attached, but the top group has a carbon forming three bonds to oxygens. That gives it the higher priority. The higher priority groups are on the same side, so this is the Z- isomer.