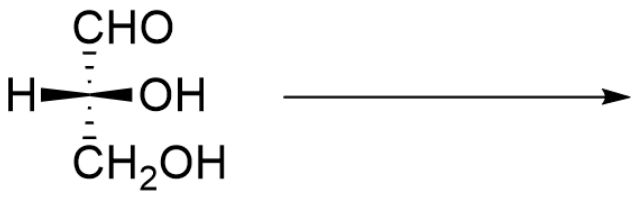
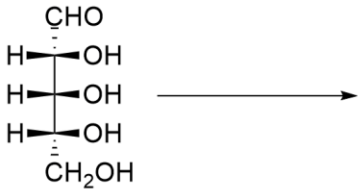
Fischer projections and Isomers

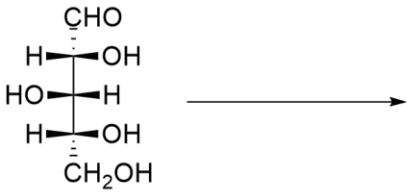
1. Define the term Fischer projection.

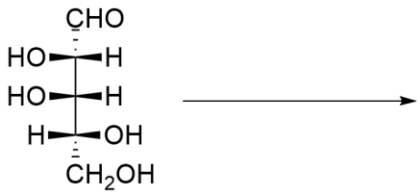
2. Convert the following molecule (R)-Glyceraldehyde to a Fischer projection.

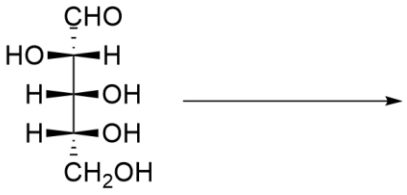


3. Convert the following 3-D representation molecules to Fischer projections.



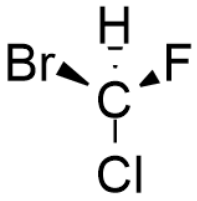




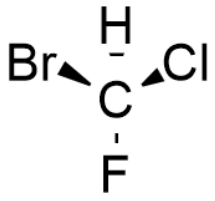


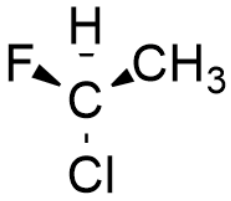
4. Write the enatiomeric forms of bromochlorofluoromethane and assign each enantiomer its correct (R) or (S) designation.

5. Tell whether the two structures in each pair represent enantiomers or two molecules of the same compound in different orientations.

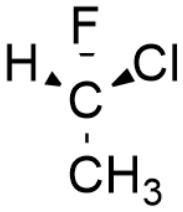


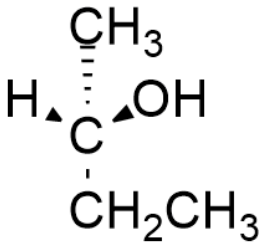
and



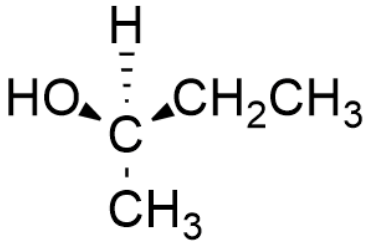


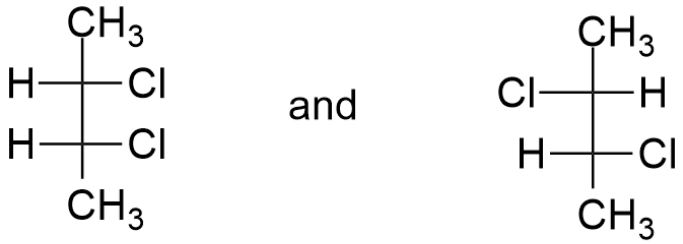
and

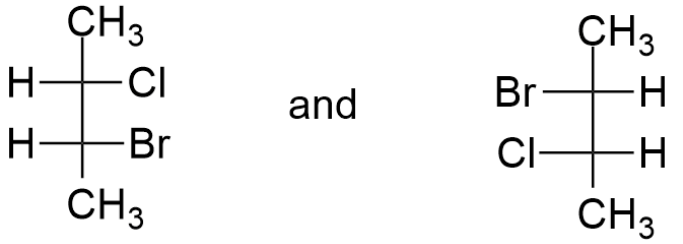




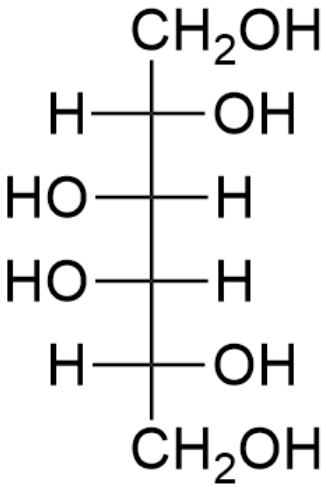
and







6. D-Galactitol is one of the toxic compounds produced by the disease galactosemia. Accumulation of high levels of D-Galactitol causes the formation of cataracts. A Fischer projection for D-Galactitol is shown here.



a. Draw the three dimensional structure for D-Galactitol.
b. Draw the mirror image of D-Galactitol and write its Fischer projection formula.
c. What is the stereochemical relationship between D-Galactitol and its mirror image?