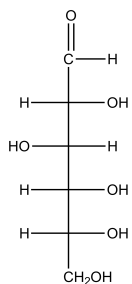


Problem Set 19: Monosaccharides

1. Label the following as dextrorotatory or levorotatory:
 - a. D-(+)-glucose
 - b. D-(+)-mannose
 - c. D-(-)-fructose
 - d. L-(+)-fructose

2. Match the pairs below with the word that best describes their relationship: enantiomers, diastereomers, anomers, structural isomers. HINT: Relationships can be used more than once!
 - a. D-glucose and L-glucose
 - b. alpha-D-glucopyranose and beta-D-glucopyranose
 - c. D-glucose and D-galactose
 - d. L-glucose and L-fructose

3. Label all functional groups in D-glucose drawn below, and then complete a-c.
 - a. Circle the two functional groups that will react during mutarotation to form a 6 membered ring.
 - b. Draw an arrow to represent the new bond that will form during the reaction described in part a.
 - c. Draw D-glucose in the alpha and beta pyranose forms.



D-glucose