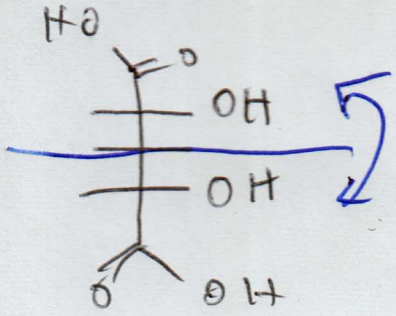
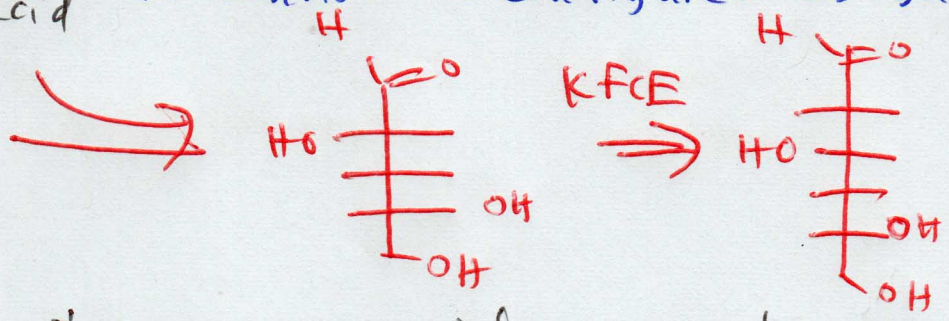
Exam #2: Now 5/30 (by popular demand)



If the two stereocenters shown were configured as shown, the molecule would be meso + therefore optically inactive.

But arabinaric acid is optically active, so it cannot be configured as shown,

arabinaric acid (optically active)



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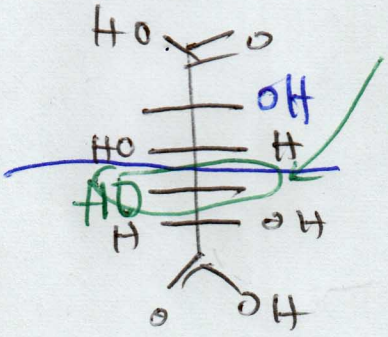
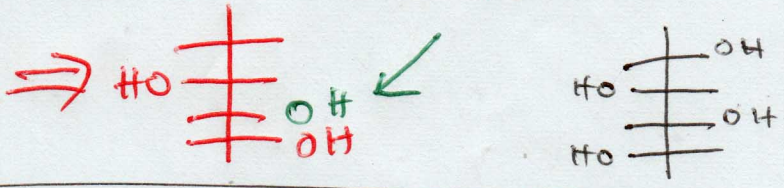
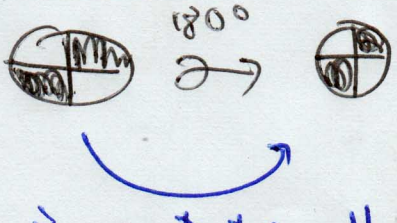
glucaric + mannaric acids are also optically active will determine this configuration



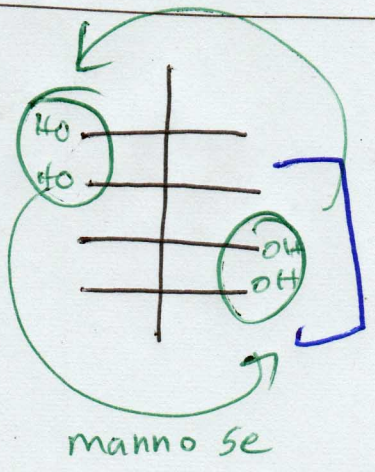
~~Since~~ when the 3rd stereocenter is configured as shown, when oxidized, ~~the~~ one of the sugars will be optically inactive (meso), since a mirror plane can be drawn for the molecule, since glucose + mannose have the same 3rd stereocenter, it must be configured the opposite way for both compounds



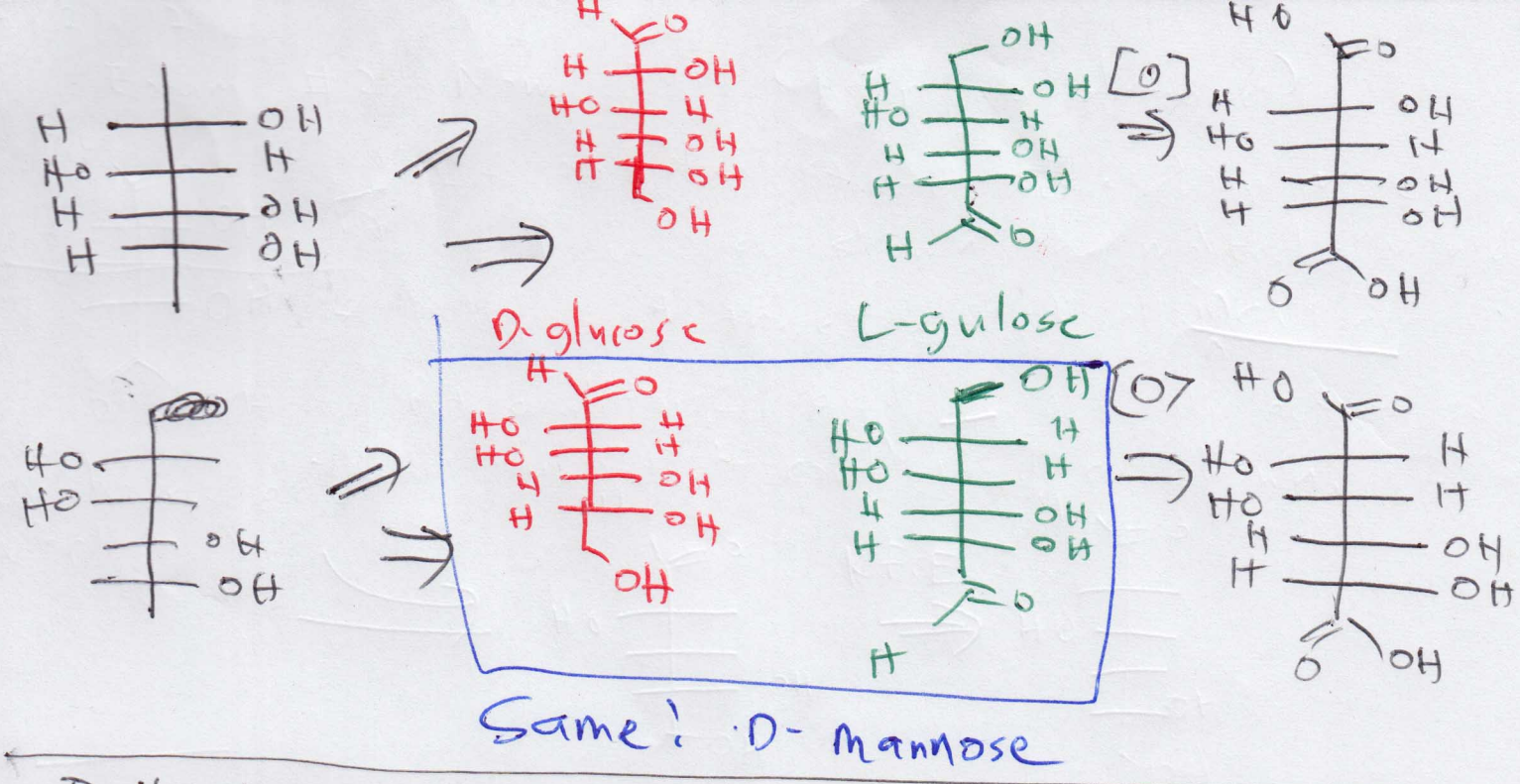
not symmetric when rotated 180°



is rotationally symmetric 180°

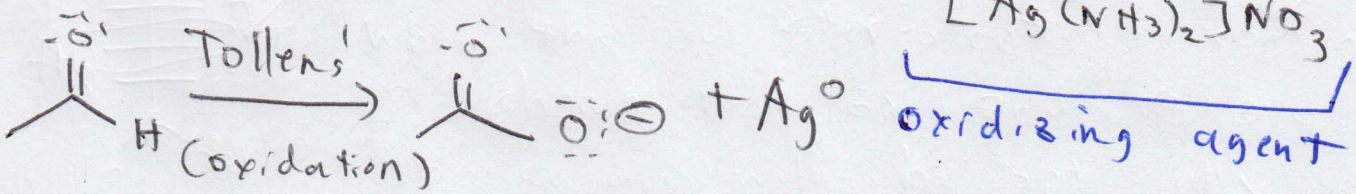


mannose

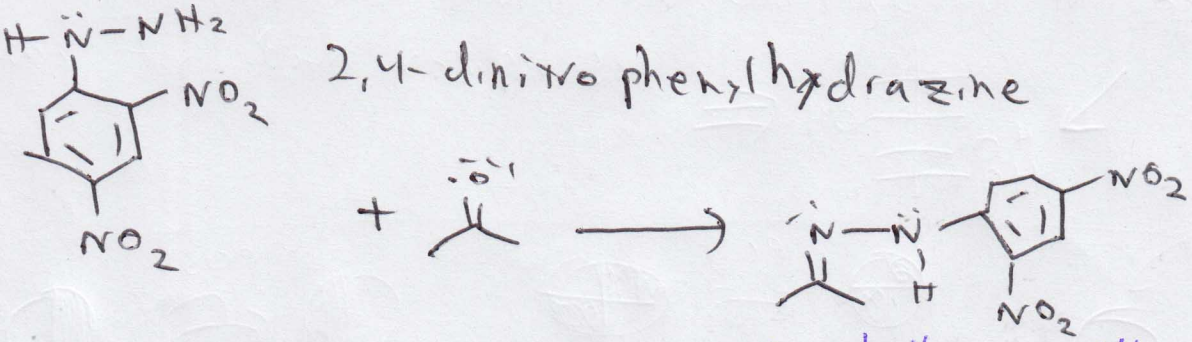


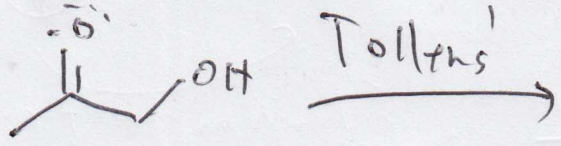
Tollens' Silver mirror test – Used to distinguish between aldehydes + ketones

$AgNO_{3\,(aq)} + 2NH_{3\,(aq)} \longrightarrow$ ~~$Ag[NH_3]_2NO_3$~~ $[Ag(NH_3)_2]NO_3$



(Silver itself is the oxidizer, so silver gets reduced)





Can double tautomerize → in soln ⇒ gives false positive.