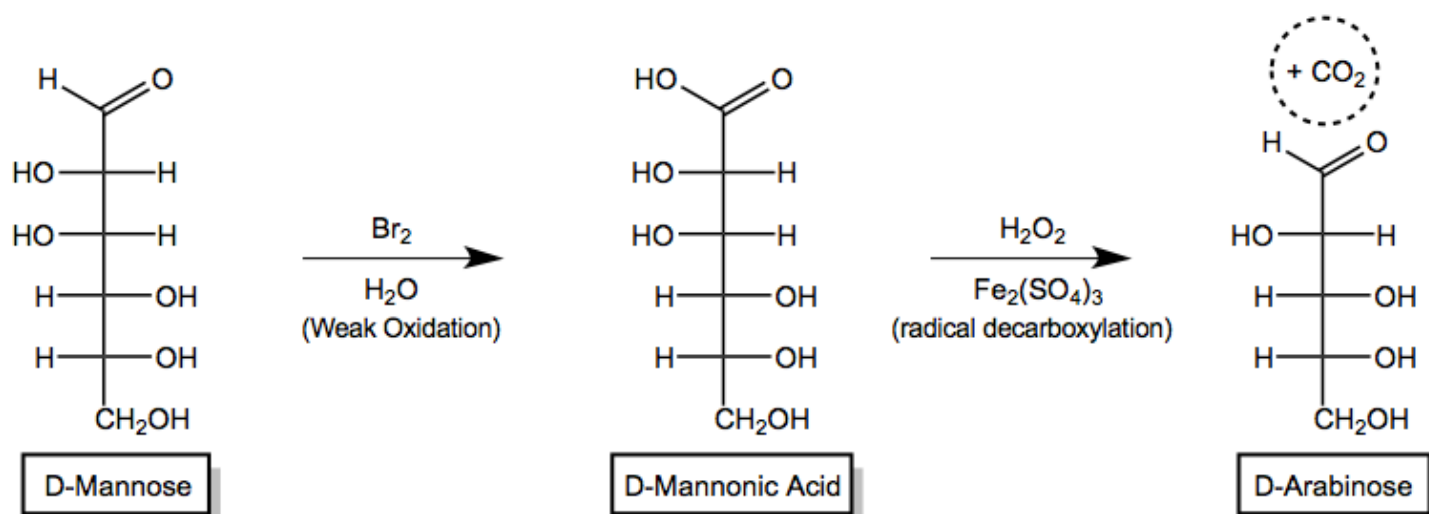


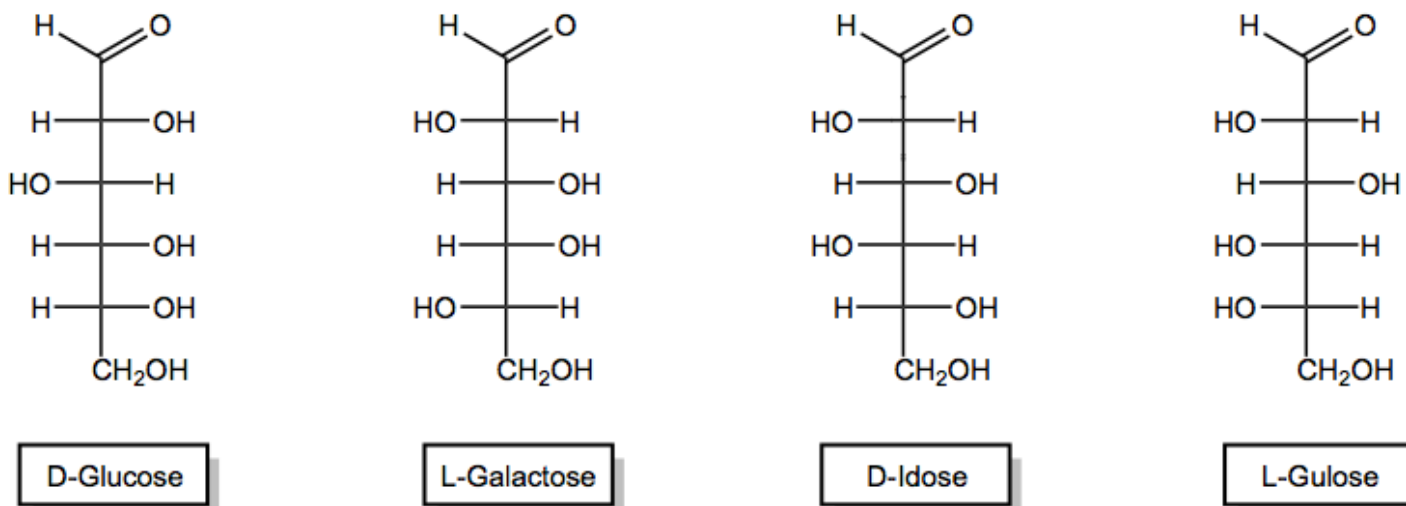
## CONCEPT: MONOSACCHARIDES – RUFF DEGRADATION

Opposite to Kiliani-Fischer, aldose aldehydes can be *oxidized* to carboxylic acids and then *decarboxylated* to shorten chains

- Chain is shortened by \_\_\_\_-carbon every cycle. Unlike Kiliani-Fischer, results in the formation of a single epimer
- The \_\_\_\_-stereocenter is lost in every cycle, so both C2 epimers of the original sugar produce the same product



**EXAMPLE:** Circle the aldohexoses that would produce the same Ruff Degradation product. If none would share a degradation product, write "N/A".



**EXAMPLE:** Predict the product for the following reaction. If multiple steps are indicated, include all intermediate structures.

