CONCEPT: HYDROLYSIS OF NUCLEOSIDES

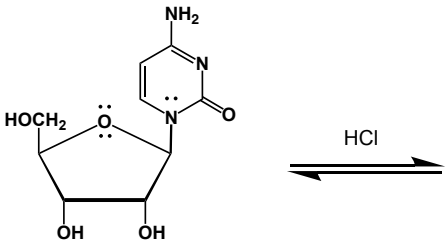
- Nucleosides are not easily hydrolyzed, however given a _____ enough acid and time it is possible.
  - □ Produces free sugar and base.

Acid-Catalyzed Hydrolysis Mechanism

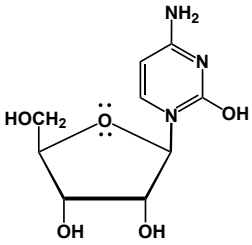
Step 1	Step 2	Step 3	Step 4
Proton Transfer	Leaving Group	Nucleophilic Attack	Proton Transfer

EXAMPLE: Provide the mechanism for the acid-catalyzed hydrolysis of cytidine.

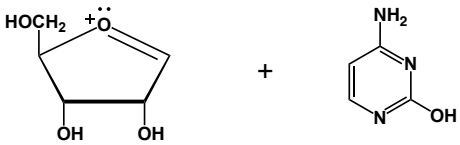
STEP 1: Use hydronium ion to _____ carbonyl oxygen.



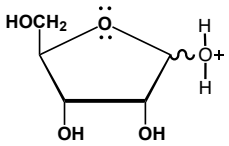
STEP 2: Create _____ bond between anomeric O and anomeric C to expel the _____.



STEP 3: Use water as a _____ to attack anomeric carbon.



STEP 4: Use another _____ to deprotonate positive O.



CONCEPT: HYDROLYSIS OF NUCLEOSIDES

PRACTICE: Propose a mechanism for acid-catalyzed hydrolysis of adenosine.