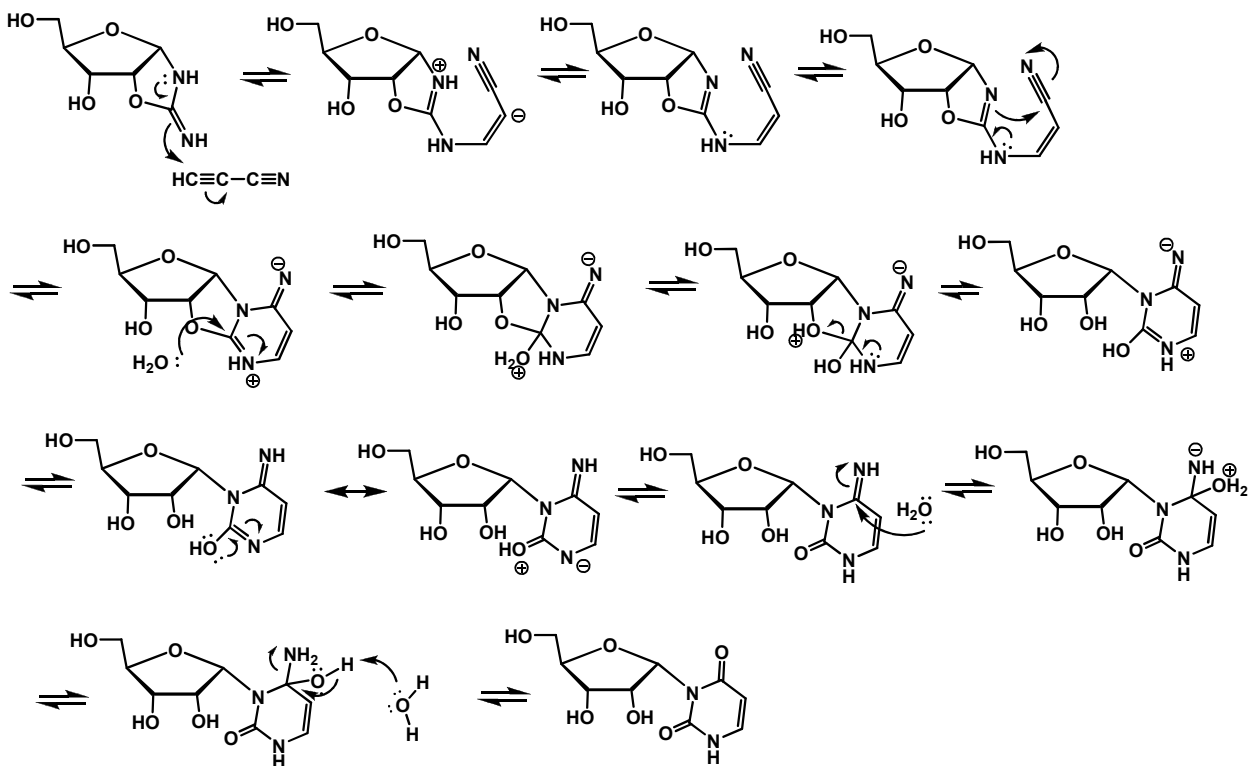
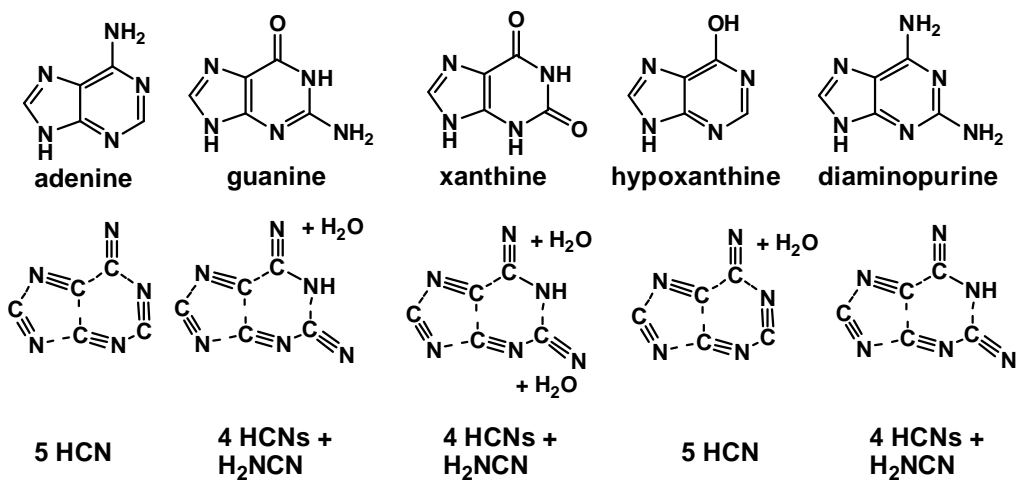


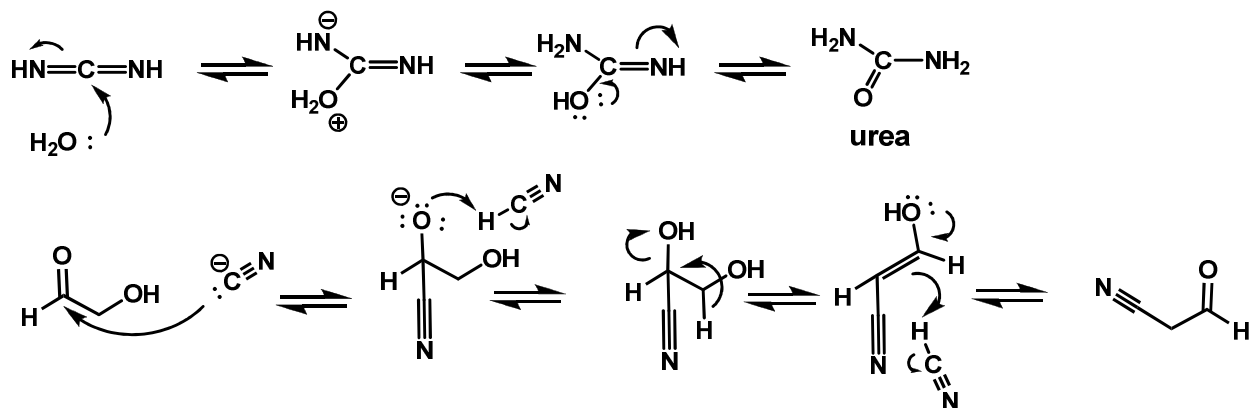
27-1. The mechanism is presented below. The 2'-hydroxyl on ribose maintains its stereochemistry because the hydrolysis event occurs on the nucleobase intermediate rather than the ribose ring.



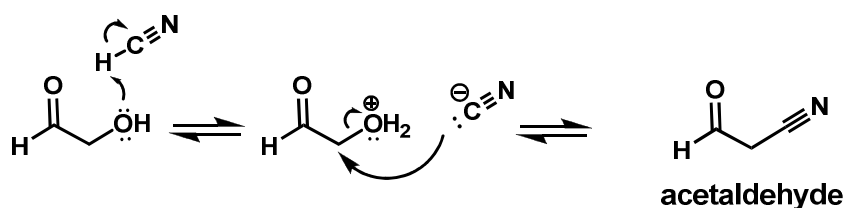
27-2.



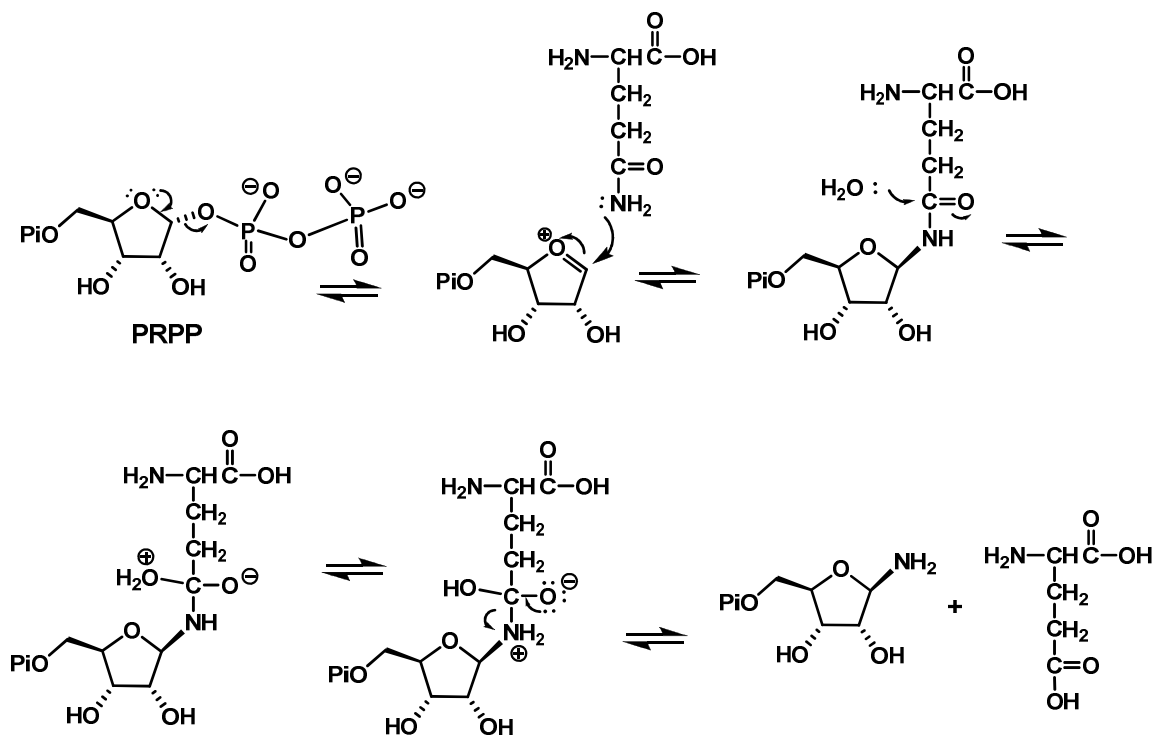
27-3. Addition, elimination:



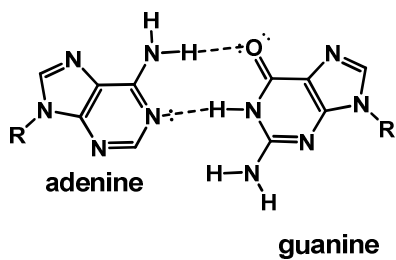
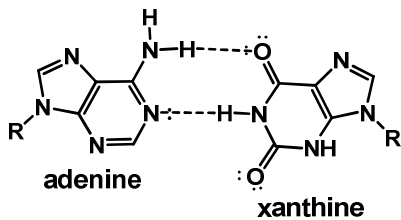
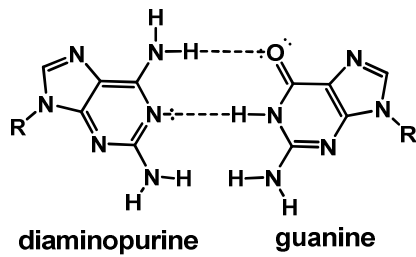
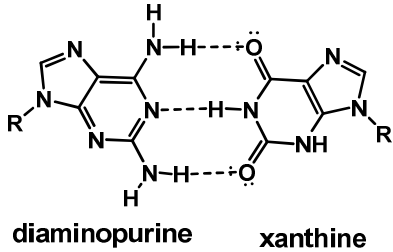
or the $\text{S}_{\text{N}}2$ mechanism:



27.4.



27.5 (a) Four possible base pair partners are shown below.



(b) Guanine, xanthine, and diaminopurine can all base pair with multiple partners.

(c) A base pairing system that maintains informational integrity seems impossible with this set of nucleobases because of promiscuity. Pyrimidines allow fidelity.