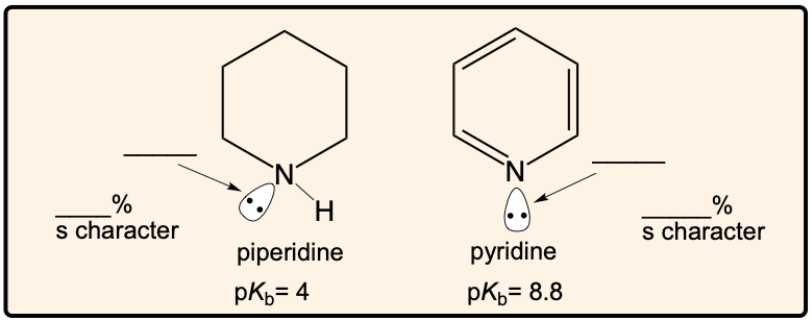
CONCEPT: ACID-BASE PROPERTIES OF NITROGEN HETEROCYCLES

● Aromatic heterocyclic amines are uniquely _____ bases, due to ____ factors.

1. **Hybridization**
2. **Aromaticity**

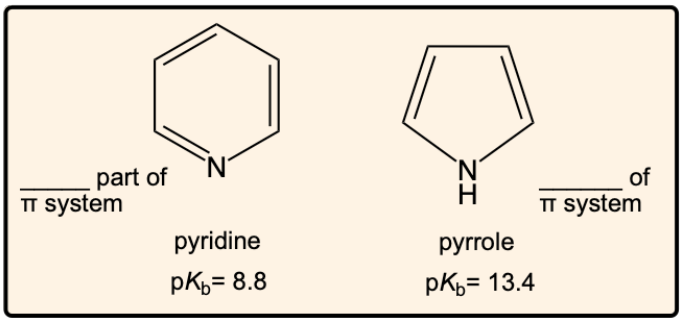
1. Hybridization

● The greater ___ character of orbital containing _____ pair, the _____ the basicity.

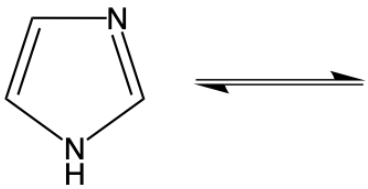


2. Aromaticity

● If lone pair is part of ____ system and not available to accept a proton, it results in a _____ base.



EXAMPLE: Draw a protonated form of imidazole. Hint: draw both resonance structures.



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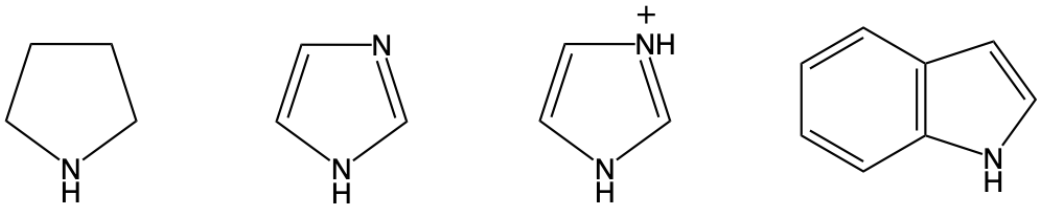
PRACTICE: Rank following heterocycles in order of increasing basicity.



A B C D

PRACTICE: Draw conjugate acid of 4-hydroxypyridine and choose the best reason why it's more basic than pyridine.

a) -OH group acts as EWG through resonance, which decreases its acidity.

b) -OH is an EWG, which decreases electron density of N making it more electrophilic, therefore making it more basic.

c) -OH is an EDG through inductive effect, which induces electrons towards the N.

d) -OH is an EDG, which increases electron density of N making it more nucleophilic, therefore making it more basic.