

Now add up all the electrons in the p orbitals:

6 from the double bonds

2 from the top nitrogen

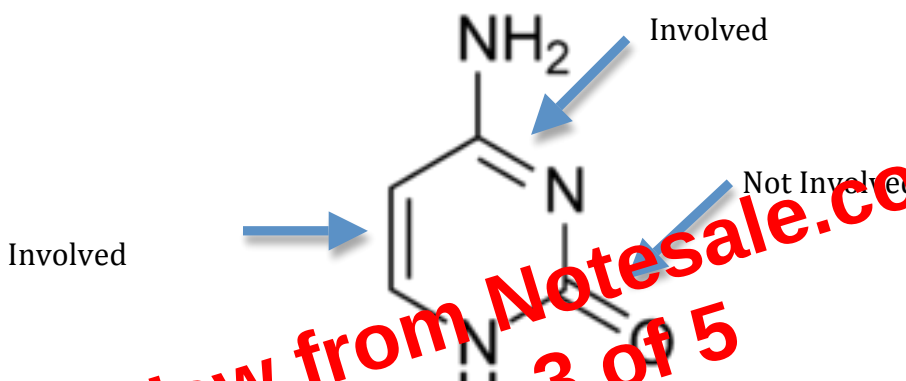
2 from the bottom nitrogen

=10 pi electrons

How to decide which electrons are involved in aromaticity:

To find out if a molecule is aromatic, you have to see whether it has $4n+2$ pi electrons in the closed loop where n is an integer.

First, count up all double bonds that are between two atoms in the closed loop. These count as two electrons.



To count a double bond's electrons, both atoms involved in the bond must be part of the ring. For example, in cytosine, the electrons in the double bonded oxygen are not part of aromaticity. You cannot even say that the one electron from the carbon is involved.

Next, add up all the pi lone pairs that are on an atom involved in the closed loop. This includes the lone pair on the bottom nitrogen. It does not include the lone pairs on the oxygen or the top nitrogen because they are not in the ring. It does not include the lone pair on the middle nitrogen because that lone pair is in an sp^2 orbital.

Add up the electrons

2 from the lone pair on the nitrogen

4 from the pi bonds in the ring

=6 electrons involved in aromaticity

This molecule has the right number of electrons to be aromatic.