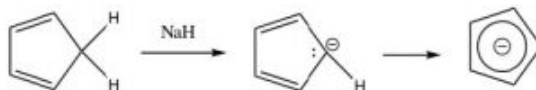
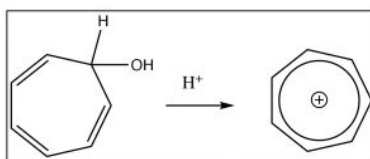


8.7: Aromatic Ions

The stability conveyed by aromaticity can be a powerful driving force. For example, cyclopentadiene is quite acidic with a pK_a of 15 (compared to > 50 for alkanes). It is the sp^3 hybridized carbon that is deprotonated and it rehybridizes to sp^2 so that conjugation around the ring is possible. The product cyclopentadienyl anion is aromatic since it now has 6π electrons; two from the lone pair resulting from the deprotonation and four from the original pi system. It is the drive towards aromaticity that makes cyclopentadiene so much more acidic than a normal alkene.



Similarly, cycloheptatriene can be induced to become a positively charged aromatic ion by treating the corresponding alcohol with acid which will allow the OH to leave as H_2O , leaving behind a positively charged delocalized aromatic ion (the tropylium cation), which has six electrons delocalized over seven carbon atoms. In fact, there are quite a few ways to generate such aromatic anions, and they are all more stable than might be predicted if you didn't know about aromaticity.



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