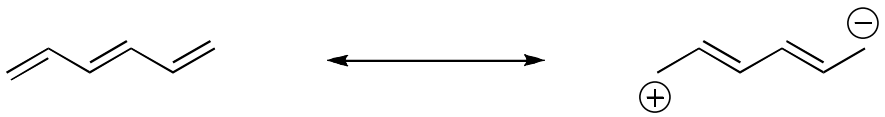
Rules for Resonance:

1. Only π-electrons move
2. Double headed arrows between each resonance structure
3. Resonance structures must have the same overall charge

Other helpful hints:

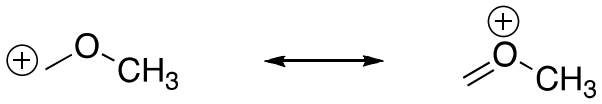
In determining which is a greater (or lesser) resonance contributor, keep in mind the following:

a. structures in which there are more covalent bonds the more stable it is more stable



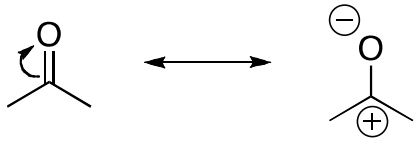
This structure is more stable because it has more covalent bonds

b. structures in which all of the atoms have a complete valence shell of electrons are especially stable and make large contributions to the resonance hybrid.

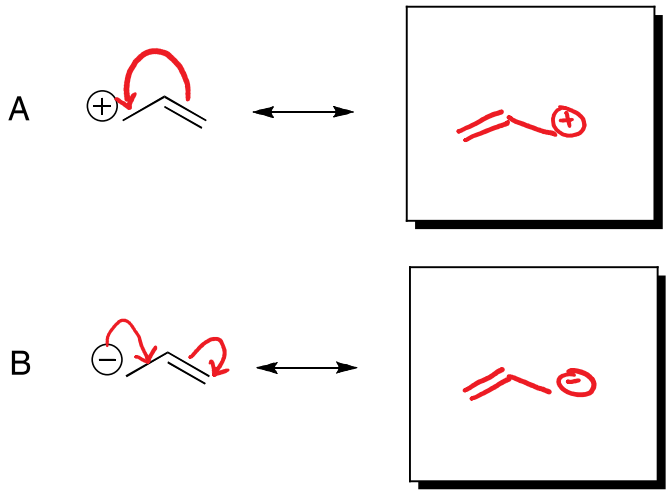


More stable becasue all atoms have full octets

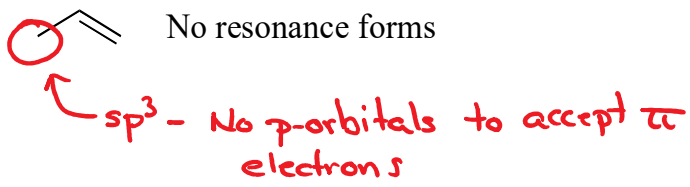
c. resonance contributors with negative charge on highly electronegative atoms are more stable than ones with negative charge on less electronegative atoms



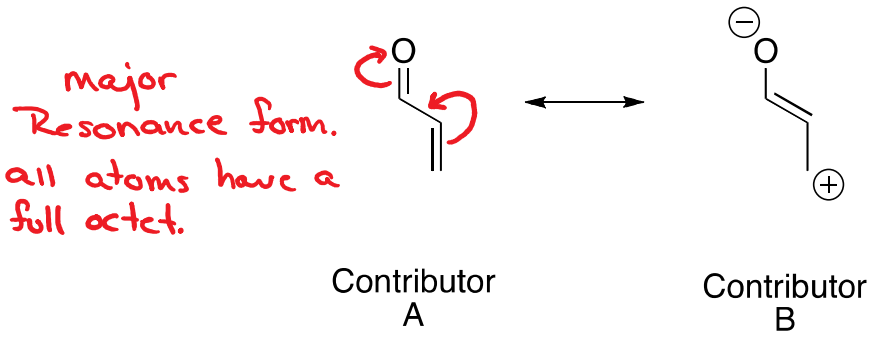
1. Using arrow formalism, draw an appropriate resonance form for the following:



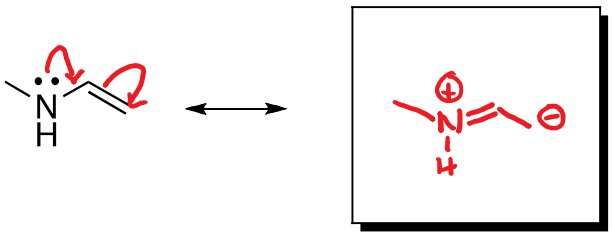
2. Explain why there is no resonance forms for the following molecule:



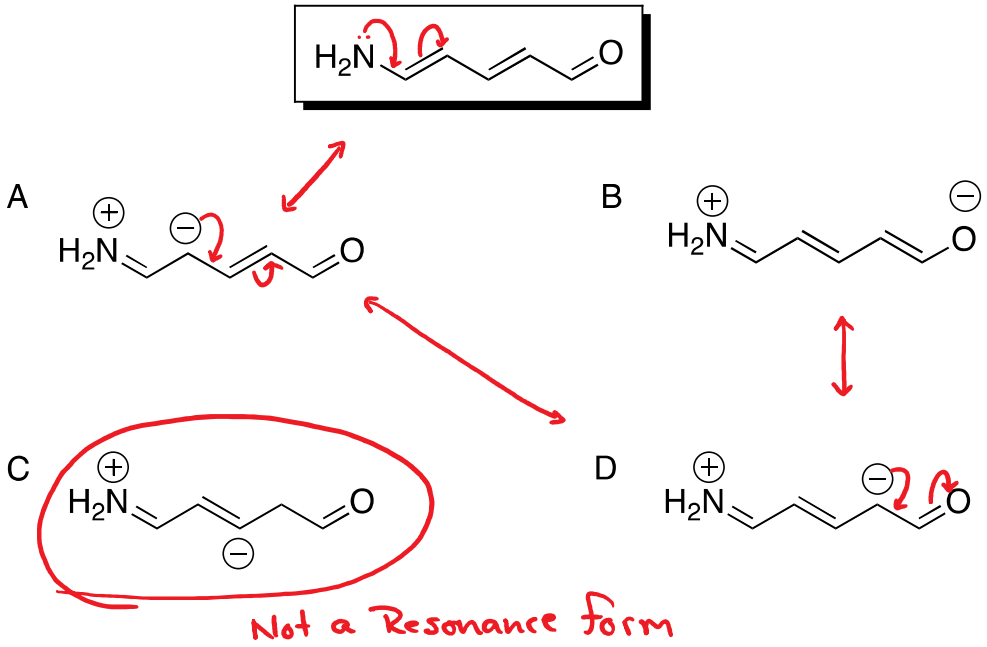
3. For the resonance forms below, draw an arrow-push that take you from contributor A to contributor B:



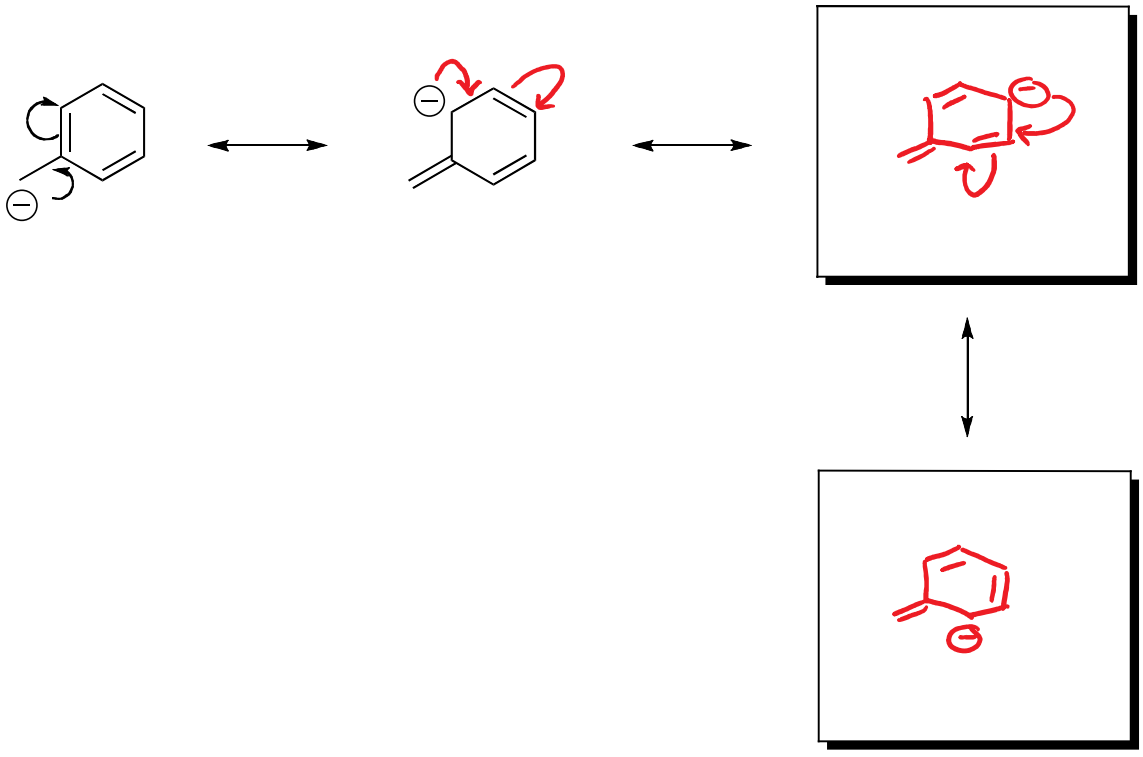
4. Using arrow formalism, draw a resonance form for the following:



5. Which of the following is NOT a resonance structure for the following:



6. Charges (both anion and cations) adjacent to an aromatic ring are stabilized via resonance. Demonstrate this concept by completing the following:



7. Show a resonance contributor for the following commonly seen functional groups: