Introduction to Resonance

The Rules

1. Lone pair or pi electrons move toward a pi bond

2. Lone pair or pi electrons move toward a positive charge

3. Single electron moves toward a positive charge

Major and Minor Contributors in Resonance

1. Electronegativity

2. More bonds, more octets

3. Intermediate stability

Resonance Principles - What Resonance Tells Us

1. Delocalization stabilizes resonance which increases resonance energy

2. More relative stable resonance contributors = greater resonance energy

3. More equivalent resonance contributors = greater resonance energy

Using Resonance to Determine Acid/Base Strength

Using the Principles of Resonance to Predict the Products of Reactions

Conjugated Dienes

An Introduction

Conjugation increases the stability of a compound

Conjugated Diene Reactions

1,2 & 1,4 Addition Reactions

The Diels-Alder Reaction

Stereochemical Rule #1: Possible Chirality (dienophile)

Stereochemical Rule #2: The Endo Rule

Stereochemical Rule #3: Preservation of Stereochemistry (diene)

Stereochemical Rule #4: Correct Alignment