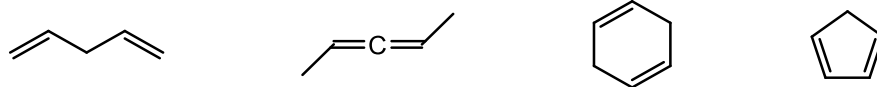
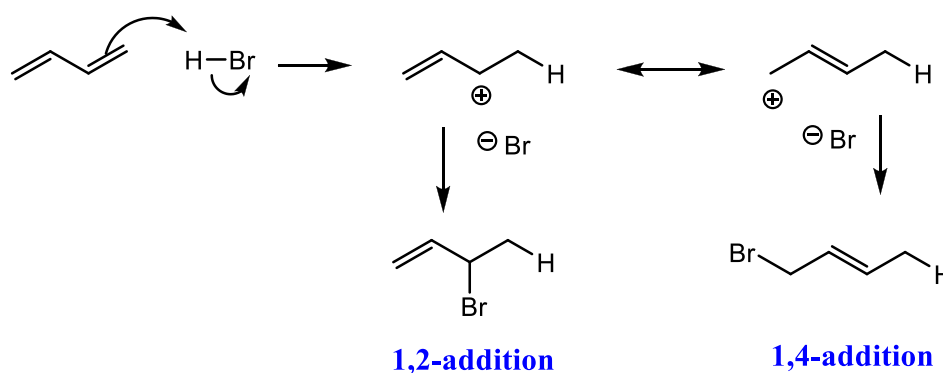


When there are two π bonds in a molecule, we have different words to describe their orientation relative to each other: isolated, conjugated, or cumulated. Identify which class of diene each of the molecules below belong to. Which of these molecules is the most stable? Why?



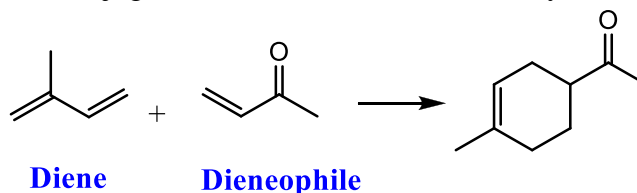
The chemistry of both isolated and cumulated dienes is essentially the same as that of any alkene you learned about in Chem 24. Conjugated alkenes, on the other hand, have a second mechanism available to them. Due to resonance, there can be two possible outcomes from addition reactions: 1,2 and 1,4-addition.



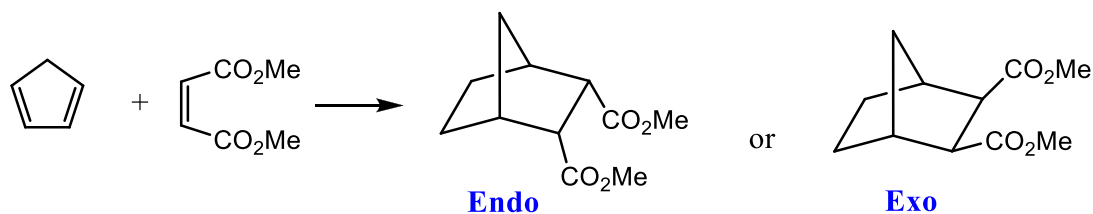
What are the two factors which influence whether a reaction will favor the 1,2 or the 1,4 product?

- 1) _____
- 2) _____

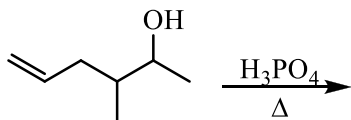
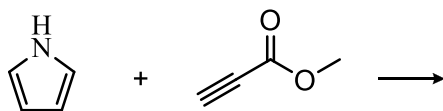
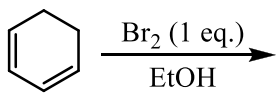
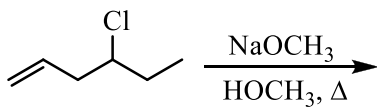
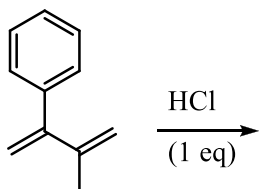
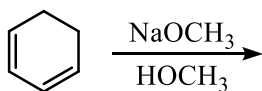
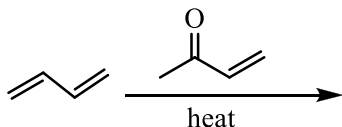
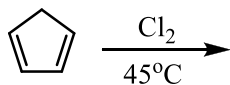
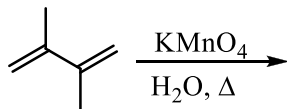
Another unique reaction of conjugated dienes is the Diels-Alder cyclization reaction



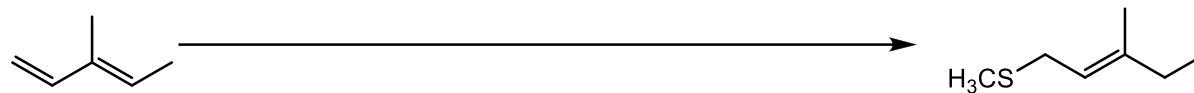
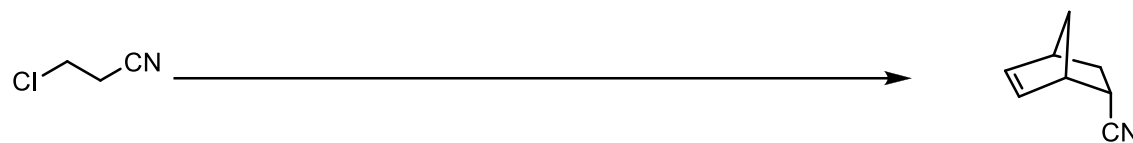
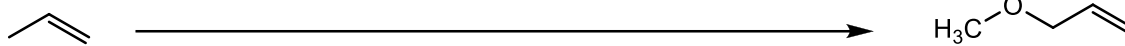
If the diene is cyclic, the product formed tends to favor the endo product



Give the products of the following reactions:



Give the reagents needed to form the indicated products:



Propose a mechanism for the following 1,4-addition reaction.

