CONCEPT: INTRO TO PERICYCLIC REACTIONS

● Conjugated polyenes have the ability to react in *non-ionic*, *concerted, cyclization* reactions called pericyclic reactions.

● All pericyclic reactions share the following properties, regardless of the type:

□ ***Non-ionic.*** Solvents have no effect on them since there are _____ partial charges.

□ ***Concerted.*** All bonds are created and destroyed simultaneously. There are no intermediates.

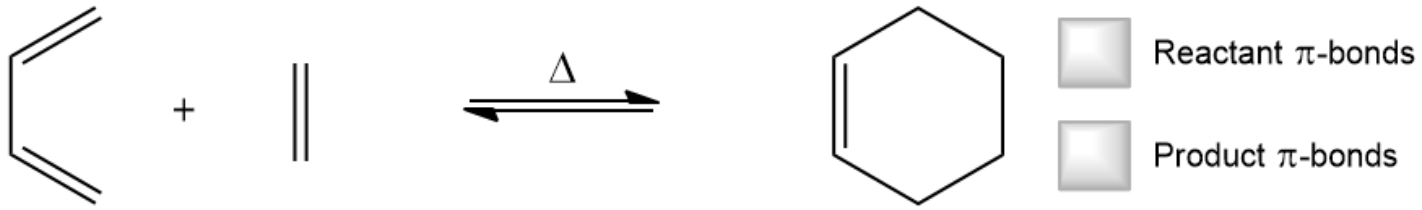
□ ***Cyclizations.*** Mechanisms involve a ring of electrons around a closed loop with _____ *transition states*.

□ ***Reversible.*** Also known as the "*principle of microscopic reversibility*".

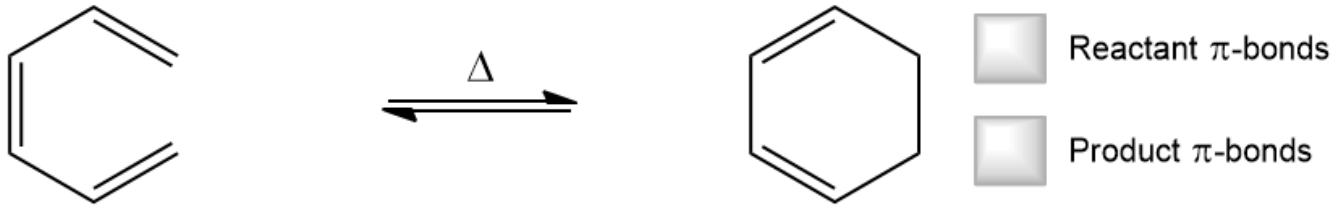
□ All can occur either *thermally* or *photochemically*.

● Pericyclic reactions can be easily categorized by the number of _____ that are destroyed after a cyclic mechanism.

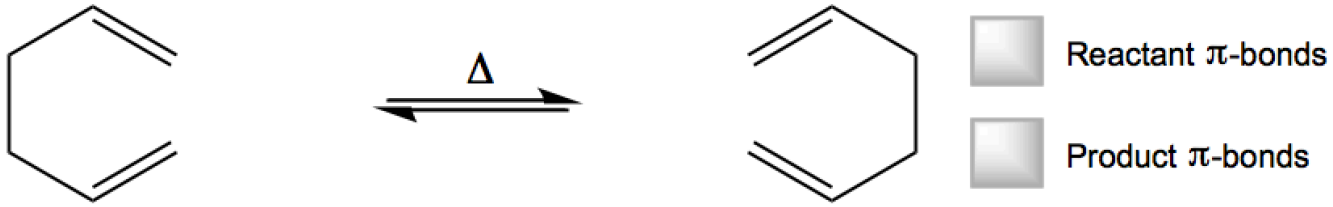
Cycloadditions: Pericyclic reactions in which ____ π-bonds are destroyed after a cyclic mechanism.



Electrocyclic Reactions: Pericyclic reactions in which ____ π-bonds are destroyed after a cyclic mechanism.

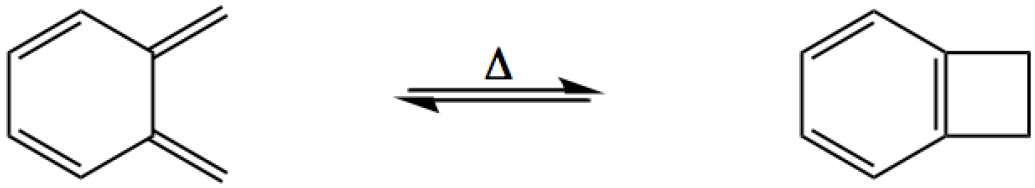


Sigmatropic Shifts: Pericyclic reactions in which ____ π-bonds are destroyed after a cyclic mechanism.

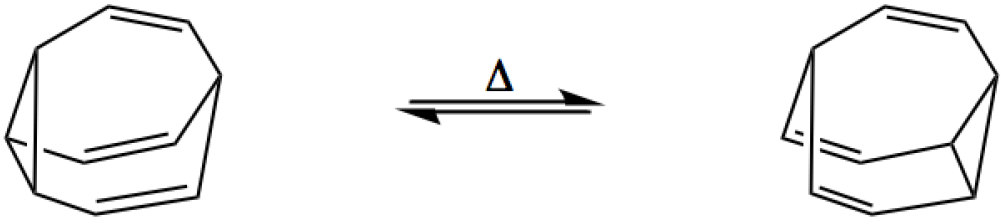


PRACTICE: Determine if the following reactions are cycloadditions, electrocyclic reactions or sigmatropic shifts.

a.



b.



c.