Sketch the diene and dienophile would give the following cyclohexene?

\[ \text{diene} + \text{dienophile} \xrightarrow{\text{heat}} \text{cyclohexene} \]

A. \[ \text{diene} \]  
B. \[ \text{dienophile} \]

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Which TS leads to the product shown?

A. endo

B. exo

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Sketch the product of the following intramolecular Diels-Alder Reaction?

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Sketch the product of the following intramolecular Diels-Alder Reaction?
Is it possible to control the reaction conditions so that one of these enantiomers is the major product?

Lewis acids catalyze the Diels-Alder reaction. Why?

chiral Lewis acid catalysts can give one enantiomer as the major product.

Predict the product of the following reaction.

What reactant would be necessary for the following Diels-Alder reaction?
Why doesn’t cyclooctatetraene react in the Diels-Alder reaction?

What is the structure of compound A?

How does cyclobutadiene react to give cyclooctatetraene?

The end of the Diels-Alder Reaction!!!

Aromatic Compounds

benzene

Aromatic Compounds

polycarbonate
**Aromatic Compounds**

- methyl salicylate (wintergreen)
- oil of wintergreen
- dopamine (nutmeg)

**Are aromatics such as benzene very reactive?**

- Benzene (C₆H₆) is unreactive, stable.
- Ethylene (C₂H₄) is reactive, unstable.

**Does benzene have a “special” stabilization that would not be anticipated for a compound containing three double bonds?**

- Benzene has a resonance energy (aromaticity) of +208.4 kJ/mol.

**How could the resonance energy (aromaticity) of benzene be estimated?**
How could the resonance energy (aromaticity) of benzene be estimated?

What is the resonance energy (aromaticity) of benzene?

What is the structure of benzene?

What theories explain benzene’s stability?

Which of these models predicts the shortest carbon-carbon bonds?