E2:
aka
aka
Rate =

Mechanism:

\[
\text{HO} - \text{CH}_2\text{C} - \text{CH}_3 \quad \rightarrow \quad \text{CH}_2 = \text{C} - \text{CH}_3 + \text{H}_2\text{O} + \text{Br}^- 
\]

Regioselectivity:

\[
\text{CH}_3 - \text{C} - \text{CH}_2\text{C}_\text{H}_3
\]

Zaitsev's Rule

Exceptions to Zaitsev:
*Conjugated dienes and delocalized electrons!!*

\[
\text{CH}_2 = \text{C} - \text{CH}_2 - \text{C} - \text{CH}_2 - \text{CH}_3
\]

*Conjugated dienes and delocalized electrons!!*
*Bulky Bases

\[
\begin{align*}
\text{CH}_3 & \quad \text{CH}_3 \\
\text{Br} & \quad \text{CH}_2
\end{align*}
\]

\( \text{F as the leaving group} \ldots \)

**E1:**

Rate =

Depends on:

- 
- 
- 

\( \varepsilon \)

**Mechanism:**

\[
\begin{align*}
\text{CH}_3 & \quad \text{CH}_3 \\
\text{PBr} & \quad \text{H}_2\text{O}
\end{align*}
\]

\( \rightarrow \text{CH}_2 = \text{C} - \text{CH}_3 + \)

\[
\begin{align*}
\text{C}_3\text{H}_3 & \\
\text{CH}_2 & \quad \text{CH}_2\text{OH}
\end{align*}
\]
11.4 Competition Between E2 and E1

<table>
<thead>
<tr>
<th></th>
<th>E1</th>
<th>E2</th>
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<tbody>
<tr>
<td>3°</td>
<td></td>
<td></td>
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<tr>
<td>2°</td>
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<tr>
<td>1°</td>
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11.5 Stereochemistry of Elimination Rxn

E2

Elimination

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Sawhorse

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Regioselective:

Stereoselective:

- If 2 H are attached to the β Carbon will get a mixture of __________
  
  Major product will be __________

- If 1 H is attached to the β Carbon will get ______________...depends
  
  Major product will be __________
11.6 Cyclic Compounds

E2

Anti Elimination:
X and H must be ____________

6 Membered rings:
X and H must be ____________

Rate:

\[ \cdot \]

E1

11.7 Kinetic Isotope Effect

Deuterium Kinetic Isotope Effect =

\begin{align*}
\text{C-H} \\
\text{C-D}
\end{align*}
11.8 Competition Between Substitution and Elimination

<table>
<thead>
<tr>
<th>SN2/E2</th>
<th>SN1/E2</th>
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<table>
<thead>
<tr>
<th>1°</th>
<th>SN2</th>
<th>E2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bulky Alkyl halide or Bulky Nuc/Base</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>2°</th>
<th></th>
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</table>

<table>
<thead>
<tr>
<th>3°</th>
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</thead>
</table>

E1 vs SN1
11.9 Substitution And Elimination Reaction in Synthesis

Williamson Ether synthesis

SN2 Rxn:

11.10 Consecutive E2

11.11 Intermolecular vs Intramolecular Reaction