Week 4 Worksheet

1. Draw the arrow pushing mechanism for the following reaction and determine the product.

   \[
   \text{OH} \quad \begin{array}{c}
   1. \text{NaH} \\
   2. \text{Br} \\
   \end{array} 
   \]

2. Predict the product(s) for the following reaction. Indicate the major and minor product if applicable.

   \[
   \text{OH} \quad \begin{array}{c}
   \text{H}_2\text{SO}_4 \\
   \end{array} 
   \]

3. Draw the mechanism for this following alcohol dehydration.

   \[
   \text{OH} \quad \begin{array}{c}
   \text{H}_2\text{SO}_4 \\
   \end{array} 
   \]

4. Propose a combination of alkyl halide and nucleophile (over the arrow) that are expected to produce the following compound. Show stereochemistry is applicable. Name the mechanism (under the arrow).
5. Draw the product of the reaction and indicate the stereochemistry around the stereogenic centers.

\[
\begin{align*}
\text{HCl} & \hspace{1cm} ZnCl_2 \\
\text{HO} & \hspace{1cm} H
\end{align*}
\]

6. Draw the product of the reaction shown below.

\[
\begin{align*}
1. \text{NaCN} \\
2. \text{H}_2\text{O}
\end{align*}
\]