1. Draw the product resulting from the reaction below. (2 points, problems 20-32k).

\[
\begin{align*}
\text{HO-} & \text{CH}_2\text{-COH} \\
& \xrightarrow{H^+} \\
\end{align*}
\]

2. Show how the following conversion could be accomplished. (3 points, problem 20-36c)

1)  
2)  
3)  
4) $\text{H}_3\text{O}^+$

\[
\begin{align*}
\text{C}_7\text{H}_{12} & \xrightarrow{1)} \text{C}_7\text{H}_{11}\text{COH} \\
& \xrightarrow{2)} \\
& \xrightarrow{3)} \\
& \xrightarrow{4)} \\
\end{align*}
\]

3. Sometimes isotope labeling is used to explore the mechanism of a particular reaction. Based upon our knowledge of the following mechanism show where the 18O would end up by drawing the product of the reaction below. Then provide a common name for the starting material. (5 points, problem 21-16)

\[
\begin{align*}
\text{H}_3\text{C} & \xrightarrow{\text{NaOH, H}_2\text{O, heat}} \text{H}_3\text{C} - \text{CH}_3 \\
\text{H}_3\text{C} & \xrightarrow{\text{NaOH, H}_2\text{O, heat}} \\
\end{align*}
\]

Common Name: