Predict the product, show any relevant stereochemistry in the product, and predict the mechanism ($S_N1$ or $S_N2$). If no reaction will occur, write “NR.”

\[
\text{NO}_2\text{CH}_2\text{CHCH}_2\text{Cl} \xrightarrow{\text{KCN, DMF}} \text{NO}_2\text{CH}_2\text{CHCH}_2\text{CN}
\]

\[
\text{[Structure]}
\]

No reaction. No antiperiplanar C-H

\[
\text{HO}\text{CHClC} = \text{CH}_2\text{CHOH} \xrightarrow{\text{NaI, acetone}} \text{HO}\text{CHClC} = \text{CH}_2\text{HI}
\]

\[
\text{[Structure]}
\]

\[
\text{CH}_2\text{OH} \xrightarrow{\text{TsCl, pyridine}} \text{tBuOK} \xrightarrow{\text{H} - \text{CH}_2\text{OH}} \text{[Structure]}
\]

\[
\text{[Structure]}
\]

No reaction. No leaving group.
Draw a detailed, viable mechanism for the reaction shown below. Be certain that your use of mechanism arrows conforms to the established conventions.