1. Write a complete mechanism (arrow formalism) leading to all reasonable products for the following reaction. Show stereochemistry of products where appropriate. 10 points

\[
\text{HBr} + \text{H} - \text{Br} \rightarrow \text{OH} + \text{Br}^-
\]

2. Write the major product(s) for the following reaction. Include stereochemistry of products where appropriate. 5 points

3. Fill in the reagents for the following transformation. 5 points