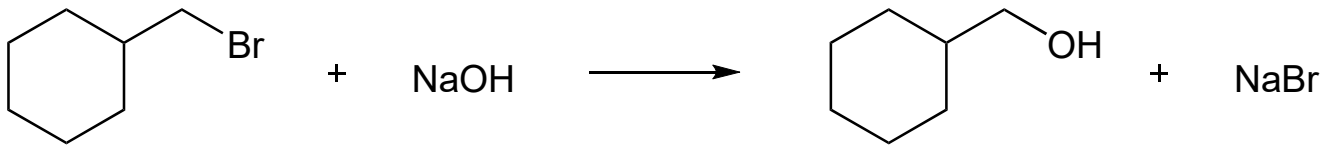
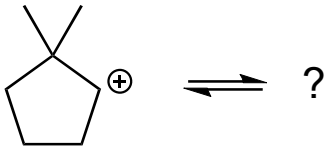
3A) (6 pts) Provide a **complete mechanism** for the following **S_N2** substitution reaction. Pay close attention to details including lone pairs, formal charges and the use of curved arrows. *To save time, start with the drawings provided!*



3B) (5 pts) Draw the transition state for the reaction given above.

3C) (5 pts) Is the following carbocation expected to undergo a rearrangement? **Briefly explain why or why not.** If a rearrangement is expected, **draw the result of the rearrangement**.



3D) (4 pts) Briefly explain why the first reaction gives a substitution product as the major product while the second reaction gives an elimination product as the major product.