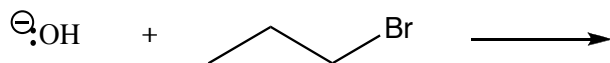


1. Label the Lewis Acid and Lewis base in the following reaction. Also, draw the curved-arrows to demonstrate the mechanism of the reaction if it occurred in a single step.

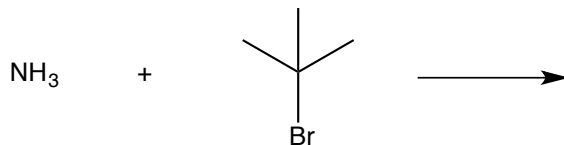


2. Predict the products of the following substitution reactions. Provide the curved arrows to explain how the product is formed through the indicated mechanism.

(a) S<sub>N</sub>2 reaction

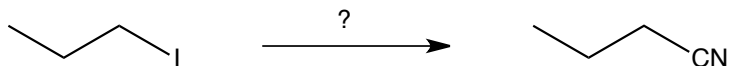


(b) S<sub>N</sub>1 reaction



3. What nucleophile would serve to effect the following reactions?

(a)



(b)

