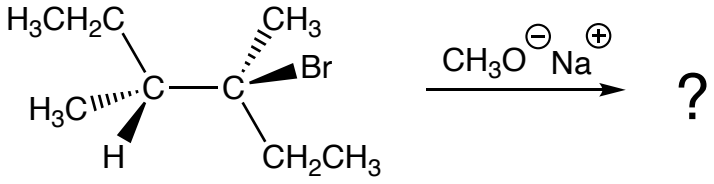
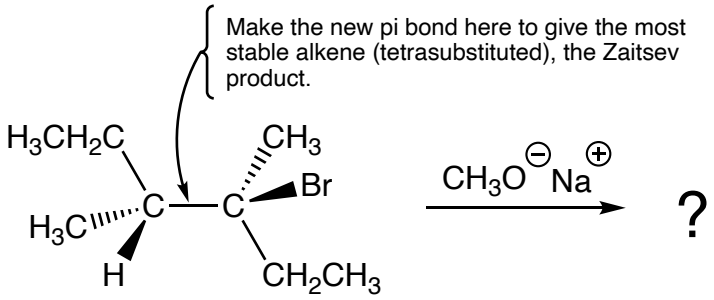
E2 Reaction Considerations:

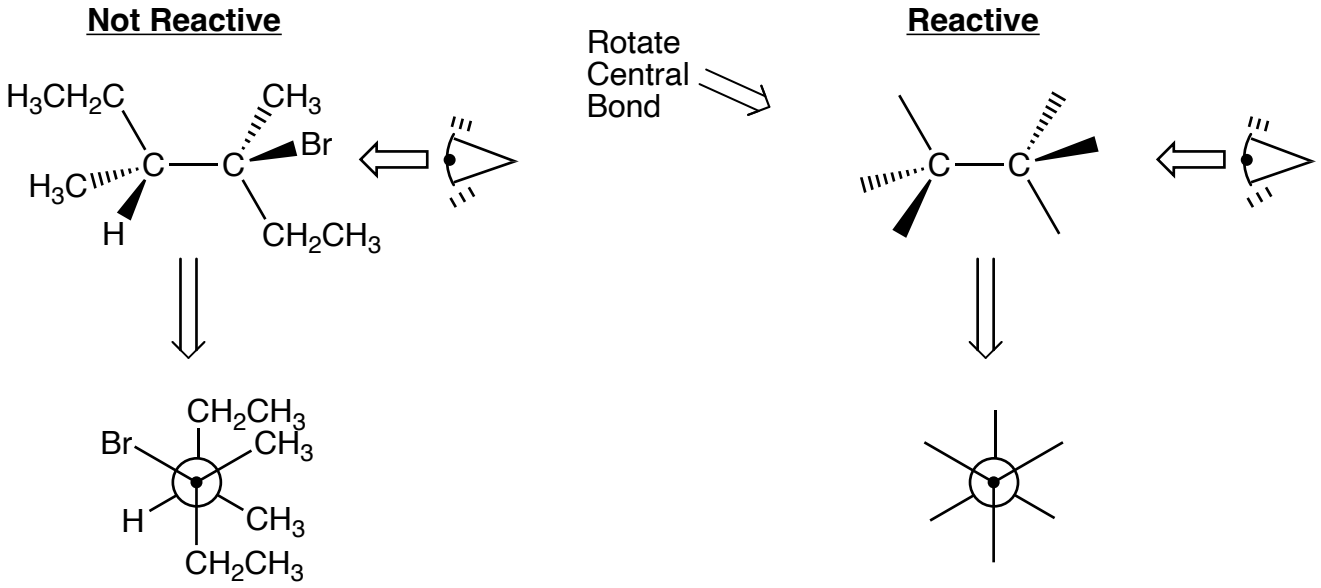


When analyzing highly substituted haloalkanes for a possible E2 reaction:

1. **You need to identify the most stable possible alkene (most highly substituted, *trans* over *cis*) that could be made (Zaitsev product).**



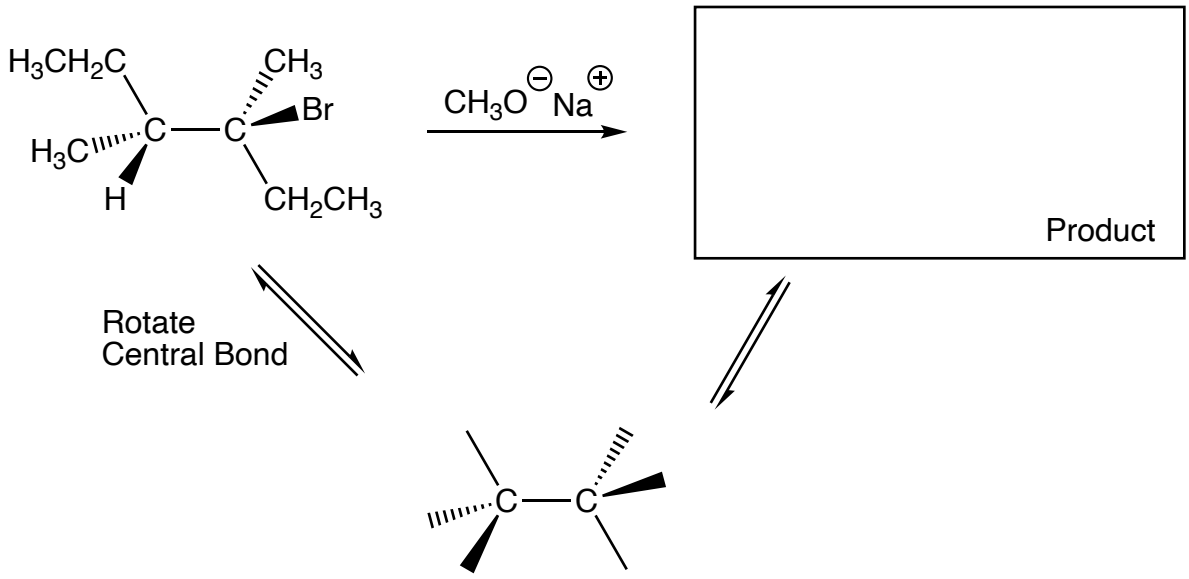
2. **Given the Zaitsev product you have identified, verify which anti-periplanar H atom(s) can be removed during the reaction to determine whether the product is E or Z.**
3. **You often need to rotate bonds to identify the particular H atom and configuration that reacts to give the alkene product.**



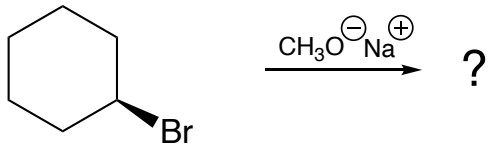
H and Br **not** anti-periplanar

H and Br are anti-periplanar

Putting it all together:

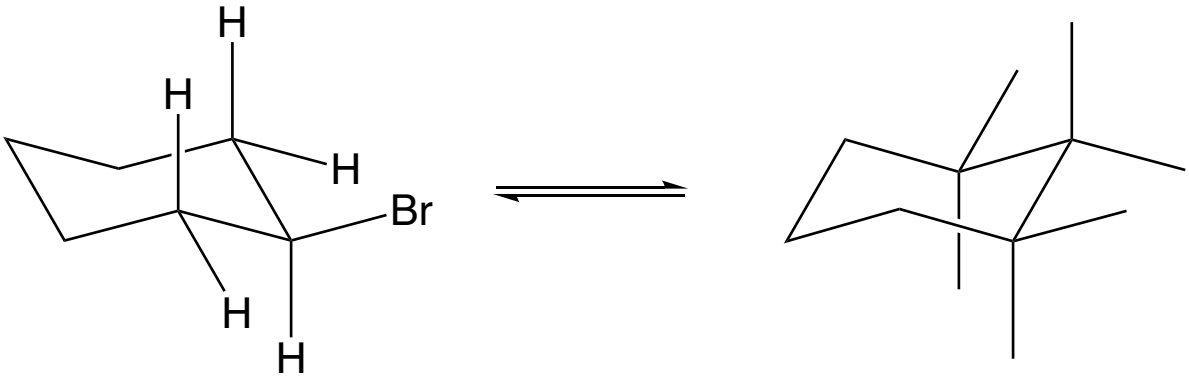


E2 Reaction of cyclohexane derivatives:



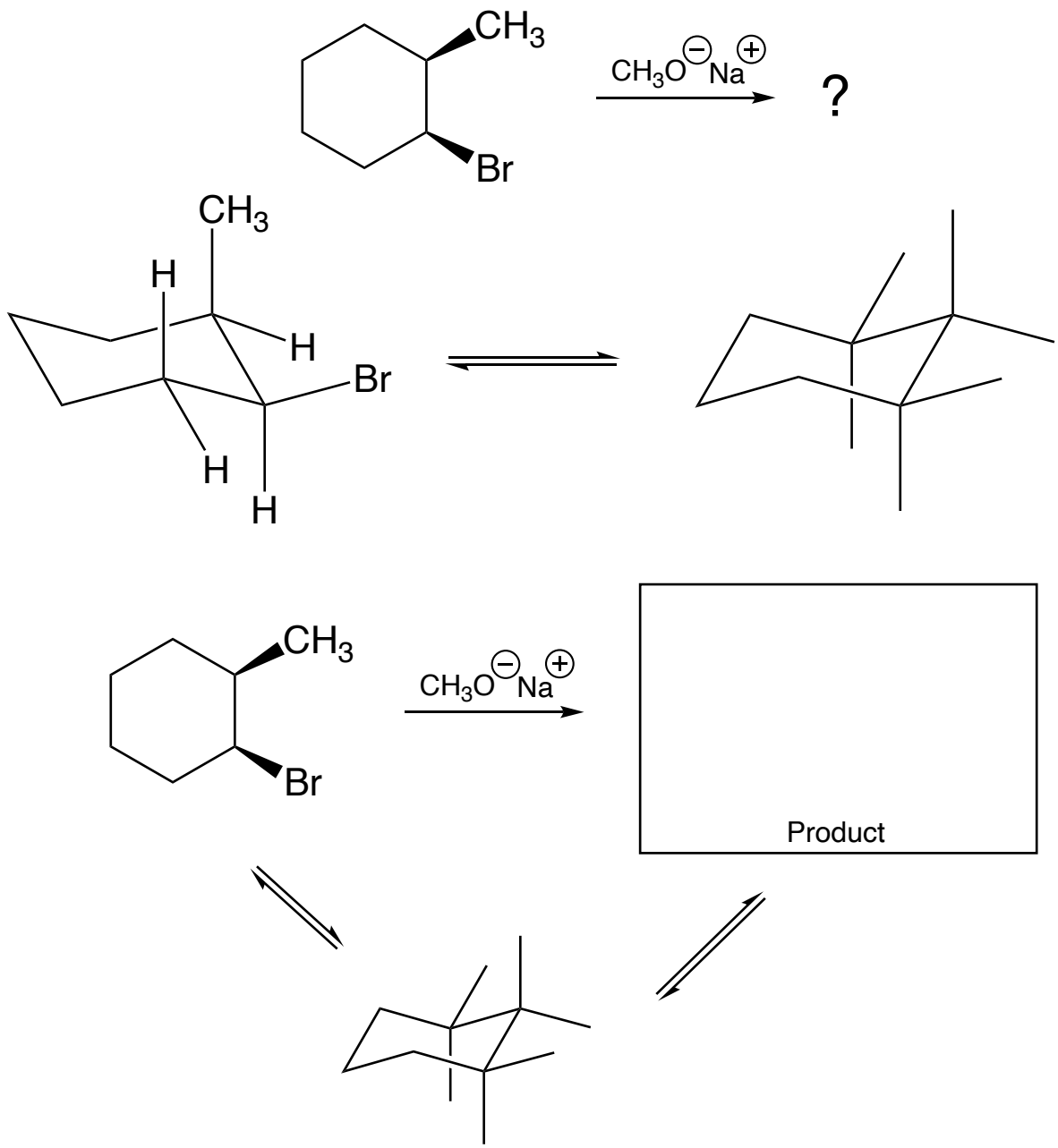
When analyzing highly substituted haloalkanes for a possible E2 reaction:

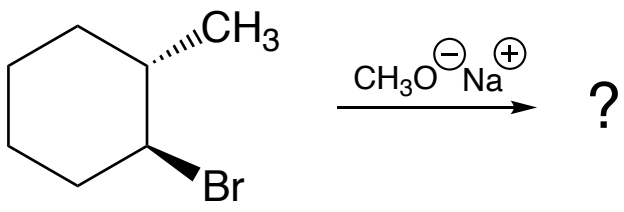
1. **You need to identify the most stable possible alkene (most highly substituted, *trans* over *cis*) that could be made (Zaitsev product).**
2. **Given the Zaitsev product you have identified, verify which anti-periplanar H atom(s) can be removed during the reaction to determine if that product can be made.**
3. **You often need to flip chairs in cyclohexane derivatives to identify the particular H atom and configuration that reacts to give the alkene product.**

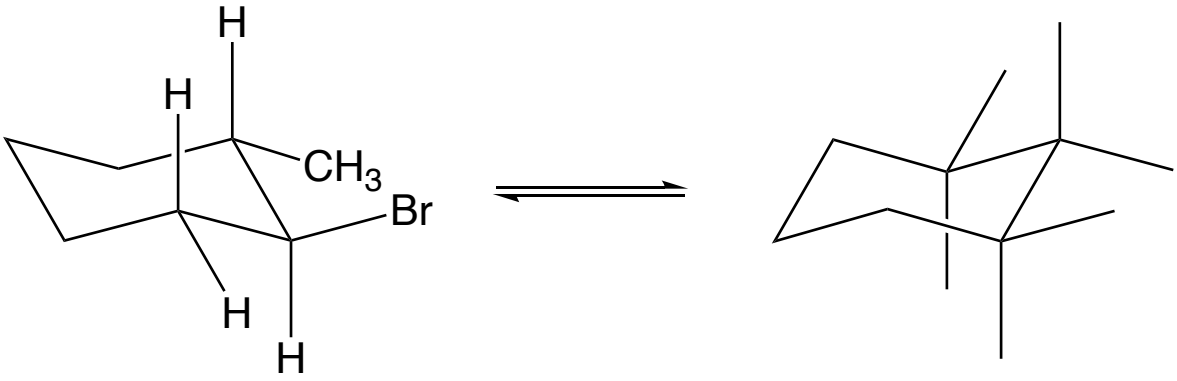


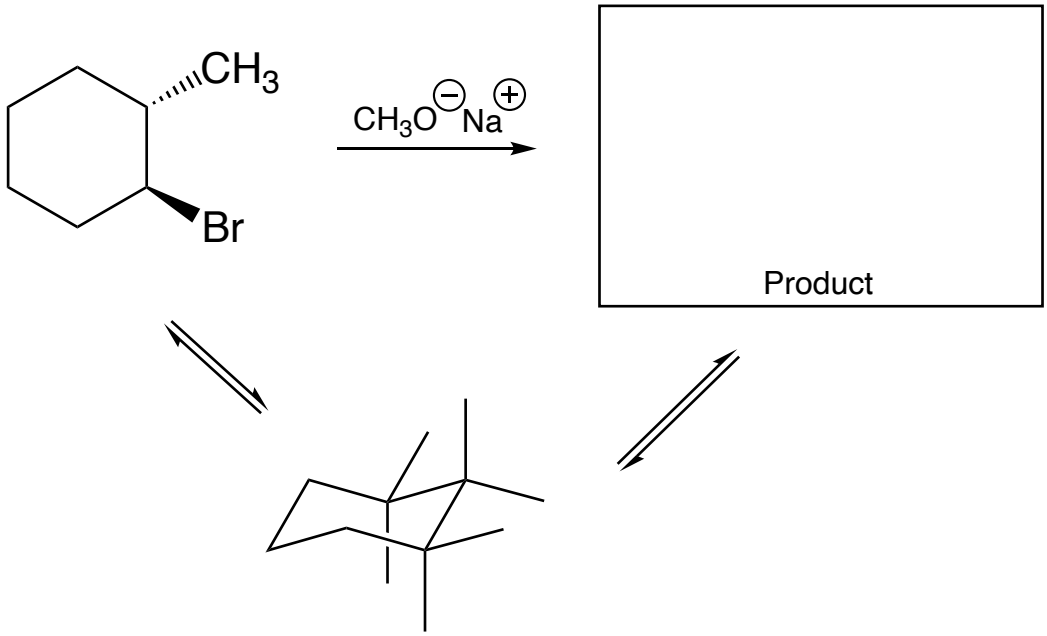
Rule:

Classic Examples:

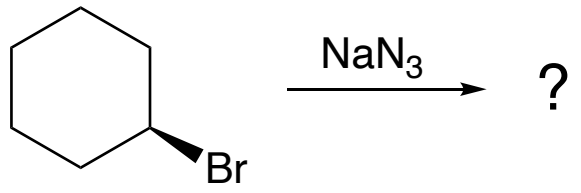


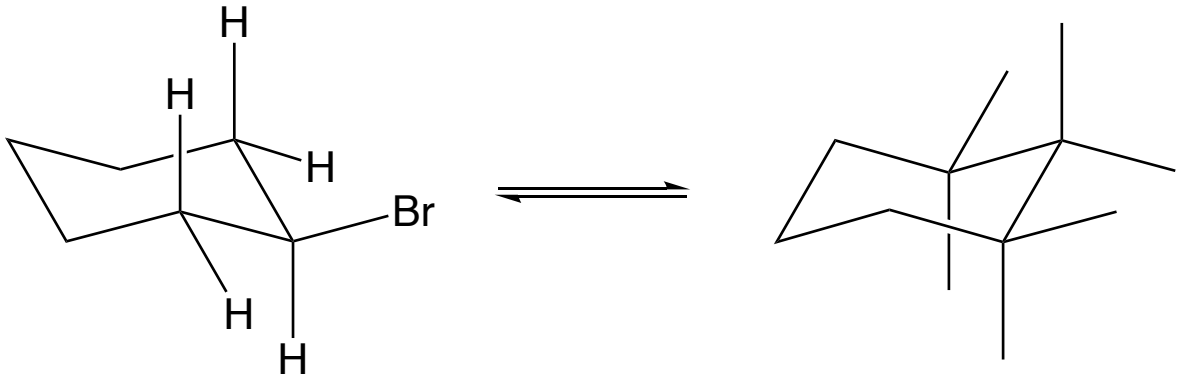

CH3
CH3O Na
Br
?

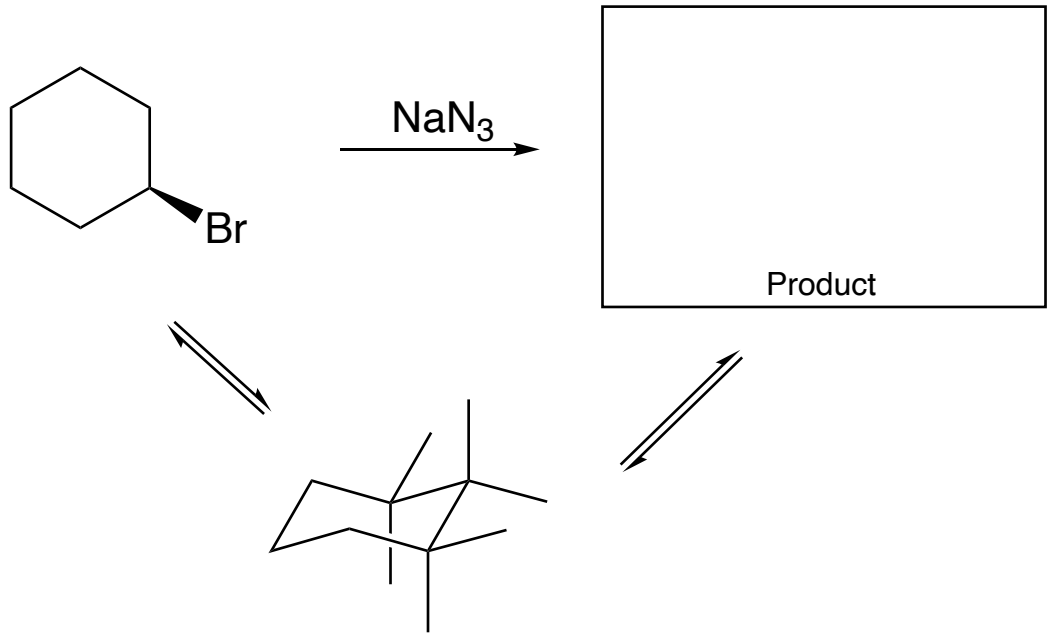

H
H
CH3
Br
H
H


CH3
CH3O Na
Br
Product

S_N2 Reactions of Cyclohexanes:



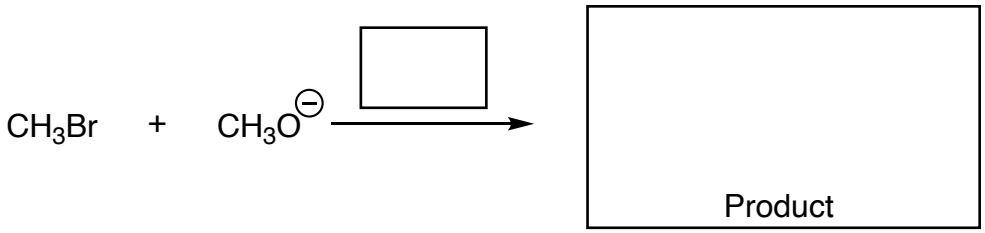




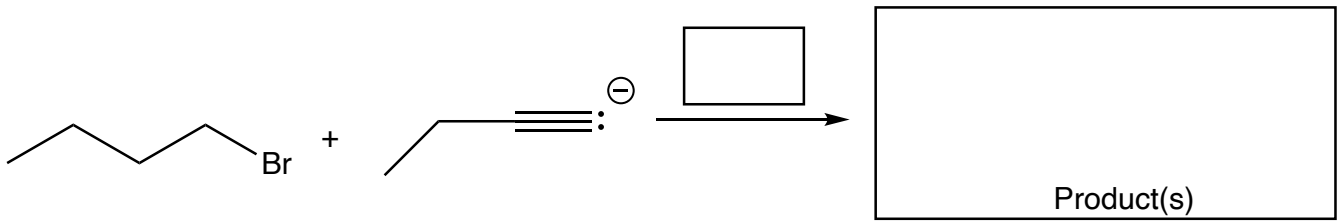
Rule:

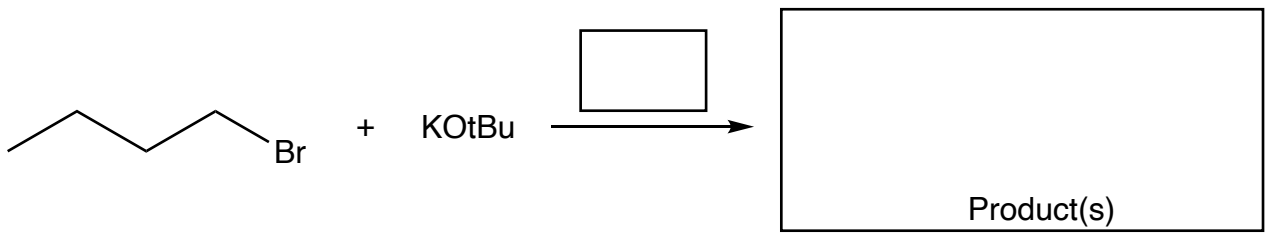
Substitution vs. Elimination Examples:

Methyl Haloalkanes (CH_3X)

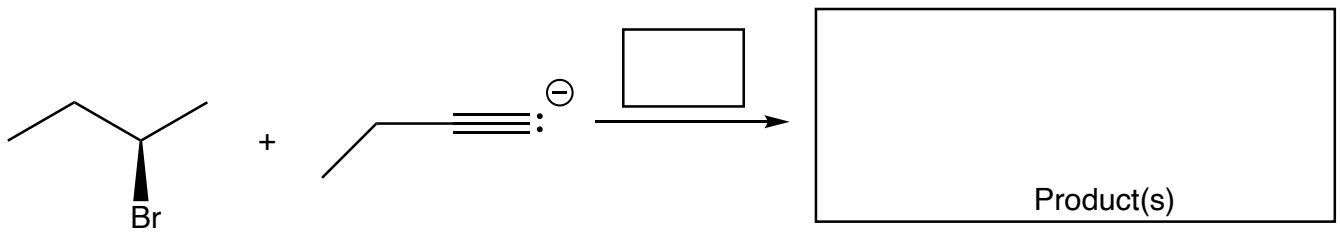


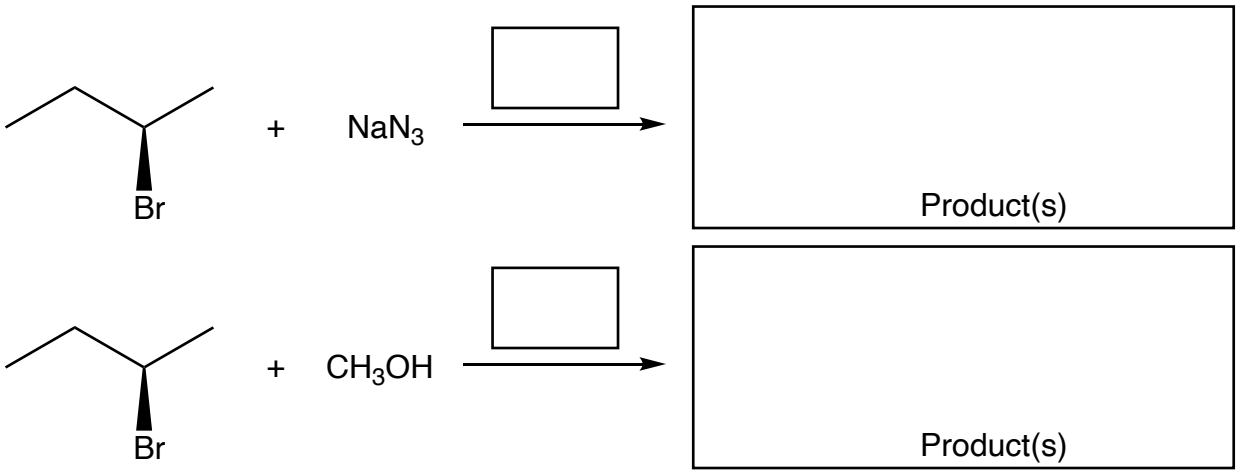
Primary (1°) Haloalkanes





Secondary (2°) Haloalkanes





Tertiary (3°) Haloalkanes