

KEY

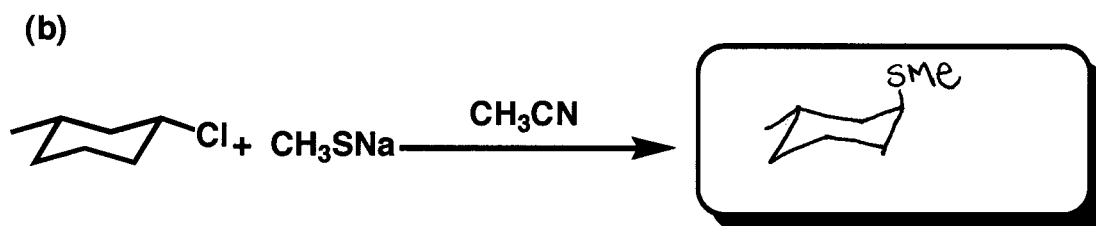
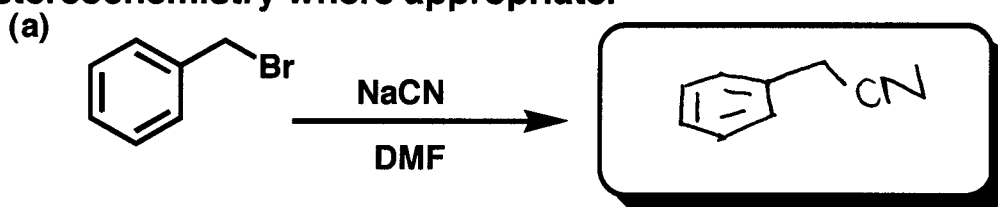
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Handout VII – Substitution Reactions

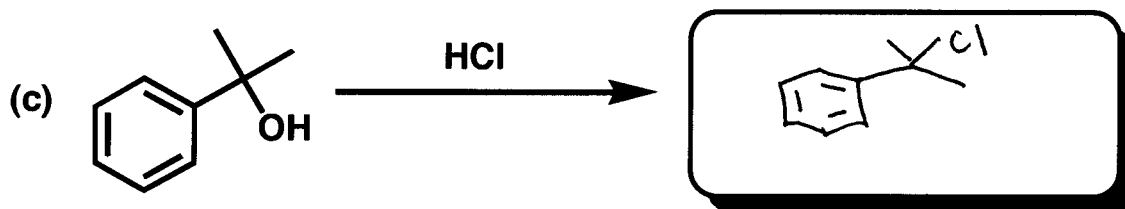
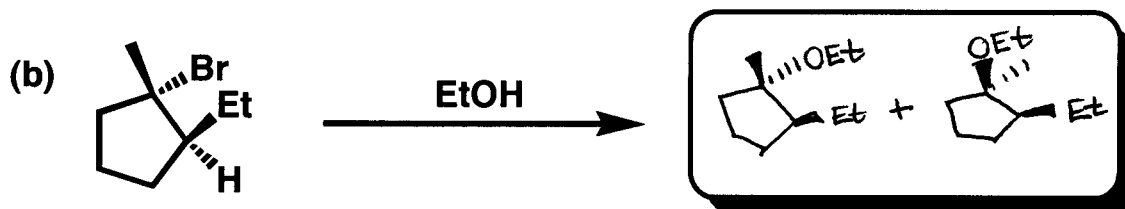
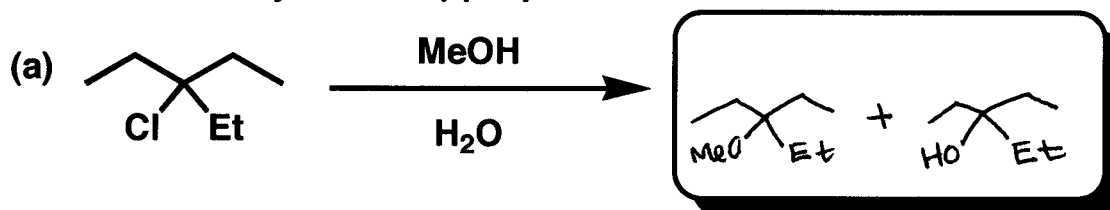
1. Fill in the table.

	S_N1	S_N2
Number of Steps	2	1
General Mechanism	step-wise	concerted
Kinetics	rate = $k[R-LG]$ (1st order)	rate = $k[R-LG][nuc]$ (2nd order)
Stereochemistry	mixed	inverted
Substrate	$3^\circ > 2^\circ > 1^\circ$	$1^\circ > 2^\circ > 3^\circ$
Solvent	polar protic	polar aprotic
Competing Reactions	E_1	E_2

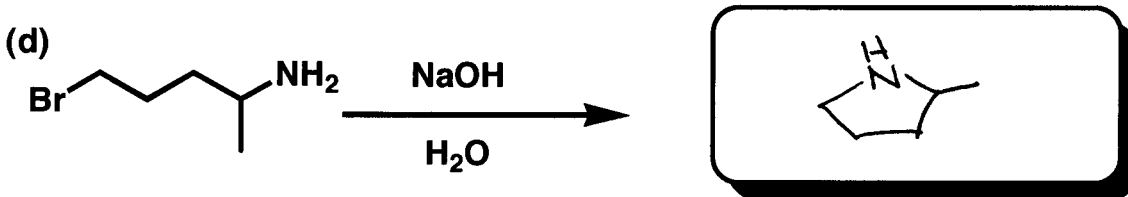
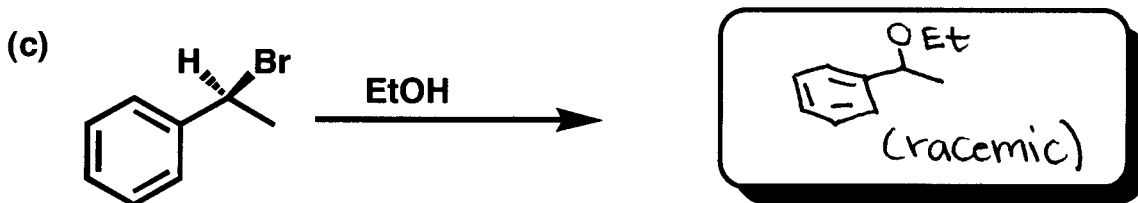
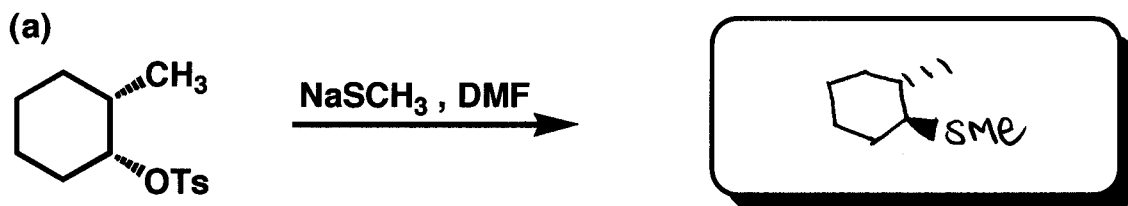
2. Draw the product(s) of each S_N2 reaction. Include stereochemistry where appropriate.



3. Draw the product(s) of each S_N1 reaction. Include stereochemistry where appropriate.



4. Determine whether these reactions follow an S_N1 or S_N2 mechanistic pathway. Explain why you decided upon the pathway you chose, predict the products in each case, and draw curved arrows.



(NH_2 is a better nucleophile than OH^-)
 & intramolecular attack is favored over
 intermolecular