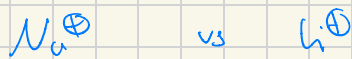
						
	reduced	reduced slowly	not usually reduced						
	$\text{R}-\text{N}^+\text{H}-\text{R}$ iminium ions	$\text{R}-\text{CHO}$ aldehydes	$\text{R}-\text{C}(=\text{O})-\text{R}$ ketones	$\text{R}-\text{C}(=\text{O})-\text{OR}$ esters	$\text{R}-\text{C}(=\text{O})-\text{NR}_2$ amides	$\text{R}-\text{COOH}$ carboxylic acids			
NaBH_3CN	↓								
NaBH_4	↓	↓	↓	↓	↓	↓			
LiBH_4		↓	↓	↓	↓	↓			
LiAlH_4		↓	↓	↓	↓	↓			
BH_3		↓	↓	↓	↓	↓			
	$\text{R}-\text{NHR}$ amines	$\text{R}-\text{CH}_2\text{OH}$ 1° alcohols	$\text{R}-\text{CH}(\text{OH})-\text{R}$ 2° alcohols	$\text{R}-\text{CH}_2\text{OH}$ 1° alcohols	$\text{R}-\text{CH}_2\text{NR}_2$ amines	$\text{R}-\text{CH}_2\text{OH}$ 1° alcohols			

1) Gegenüber:



• Li härter \rightarrow bessere Lewis Säure \rightarrow aktiviert Carbonyl besser

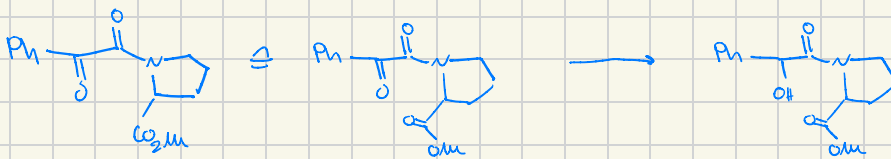
• $\text{EN}(\text{B}) = 2,04$ $\text{EN}(\text{Al}) = 1,61$ $\text{EN}(\text{H}) = 2,2$

$\Rightarrow \text{Al-H}$ mehr polarisiert \rightarrow reaktiver

$\rightarrow \text{LiAlH}_4 > \text{LiBH}_4 > \text{NaBH}_4$

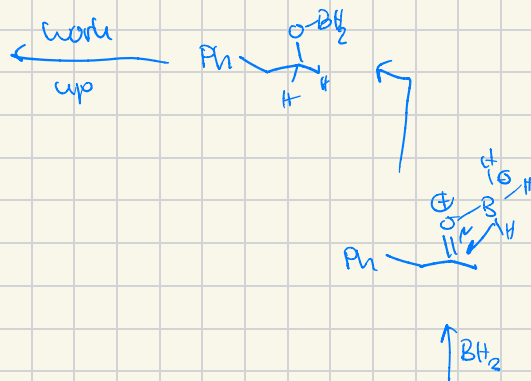
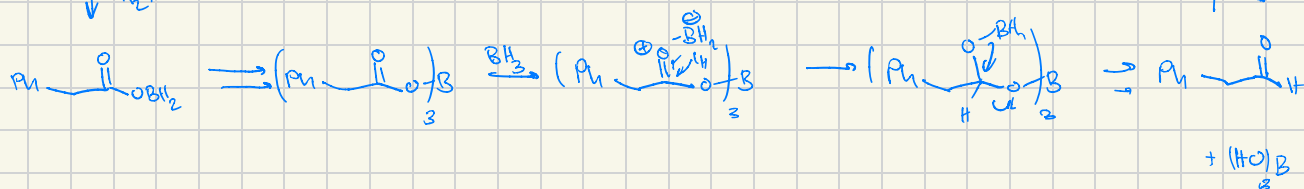
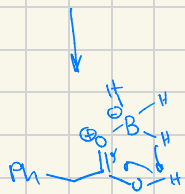
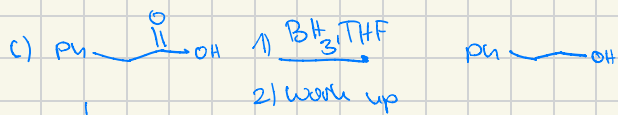
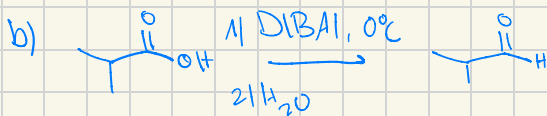
2)

a)

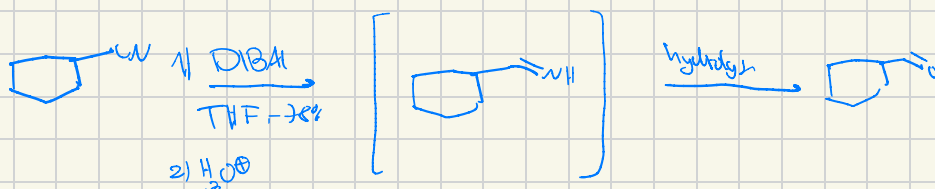


• mehrere Carbonyle, Frage der Selektivität, wollen nur den Ketan reduzieren

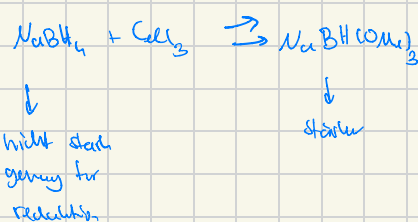
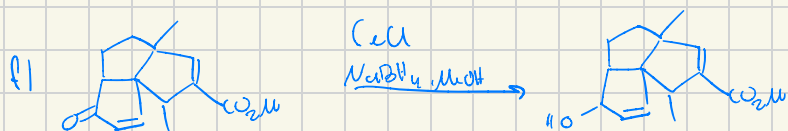
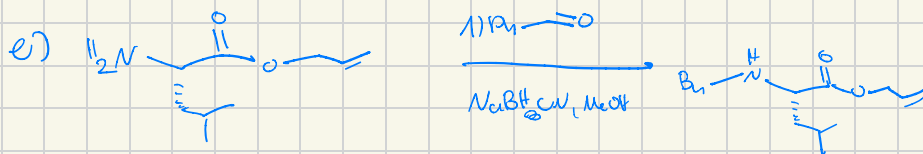
nicht Amid/Ester $\rightarrow \text{NaBH}_4$ als Reduktionsmittel



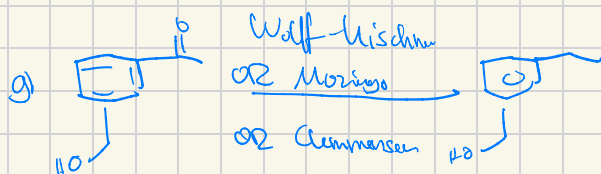
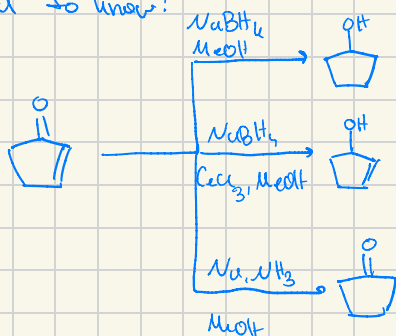
cll

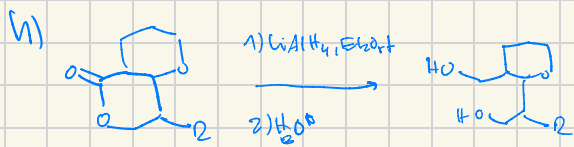


Imine sind nicht stabil in Wasser!

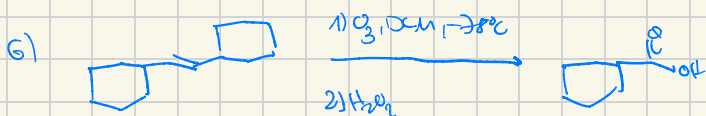
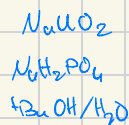
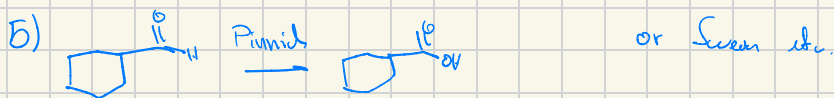
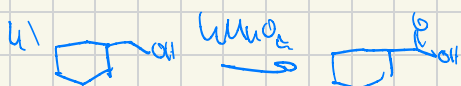
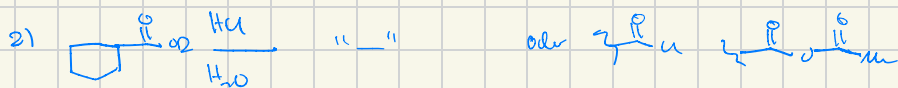
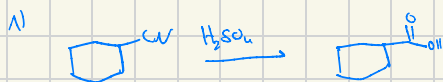
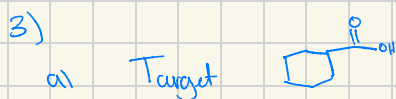
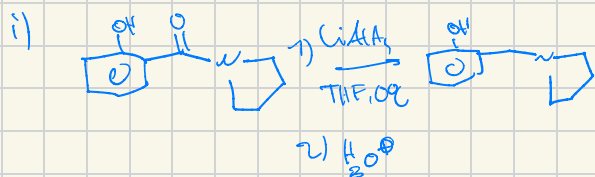
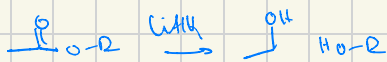


good to know:





• offener Kanton



b) Target CC(C)N

1) Reductive Amination [!] Sehr wichtig um einfach C-N Bindungen zu machen

