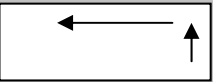



- - - - - Favored Pathway - - - - -

PARAMETER that <i>favors indicated path</i> (Use indicated order of evaluation) ↓	SN2	E2	SN1	E1 (rarely occurs!!) Exception: ROH with hot anhydrous acid)
1. Type of Nucleophile/Base weak: H ₂ O, ROH (pK _a < 2) mod.: NH ₃ , HS ⁻ , AcO ⁻ , F ⁻ , etc. Strong: pK _a > 13	Moderate or Strong <i>(prefer small; bulky favors E2)</i>	Strong; can be small or bulky, but bulky (e.g., t-bu-O ⁻) favors <i>Hofmann</i> product)	No Influence <i>(but weak minimizes bimolecular path)</i>	No Influence <i>(but weak minimizes bimolecular path)</i>
2. Type of Substrate	Me > 1° > 2°	3° > 2° > 1° (3° substrate gives E2 even with mod. base)	3° > 2°	3° > 2°
3. Temperature	cool to warm (below about 80° C)	Hot (above about 80° C)	Cool	Hot
4. Type of Solvent ----- (Nucleophilic Strength of e ⁻ rich atom - Trends in solvent)	Aprotic if possible Protic if necessary In Aprotic:  For protic solv. see →	Aprotic if possible Protic if necessary In Protic:  (due to polariz., caging)	Protic ----- Expect considerable solvolysis in addition to substitution by Nucleophile	Protic
OTHER FEATURES OF PATH				
Stereochemical requirement?	Target Atom should not be hindered	β H and Lv.Grp. Coplanar and Anti	(None)	(None)
Predominant product structure or stereochemistry?	Inversion of configuration	most branched alkene (Zaitsev Rule) – <i>but bulky base</i> → <i>Hofmann</i>	Partial or complete racemization	most branched alkene (Zaitsev Rule)
Rearrangement?	NO	NO	Frequent (makes most stable carbocation)	Frequent (makes most stable carbocation)
Kinetic Order?	2 nd order: Rate depends on [substrate] & [Nuc/Base]	2 nd order: Rate depends on [substrate] & [Nuc/Base]	1 st order: Rate depends on only [substrate]	1 st order: Rate depends on only [substrate]