CH 222 Quick & Dirty Kinetics Cheat Sheet

For the general reaction: **aA → Products**

	Zero Order	**First Order**	**Second Order**
Rate Law	Rate = k	Rate = k[A]	Rate = k[A]^2
Integrated Rate Law	[A] = $-kt$ + [A]$_0$	ln [A] = $-kt$ + ln [A]$_0$	[A]$^{-1}$ = kt + [A]$_0^{-1}$
Plot Needed For Straight Line	[A] versus t	ln [A] versus t	[A]$^{-1}$ versus t
Relationship of Rate Constant to the Slope of Straight Line	Slope = $-k$	Slope = $-k$	Slope = k
Half-life	$t_{1/2}$ = [A]$_0$/2k	$t_{1/2}$ = 0.693/k	$t_{1/2}$ = 1/(k[A]$_0$)