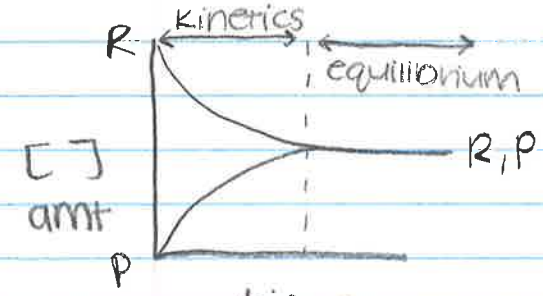
February 7th



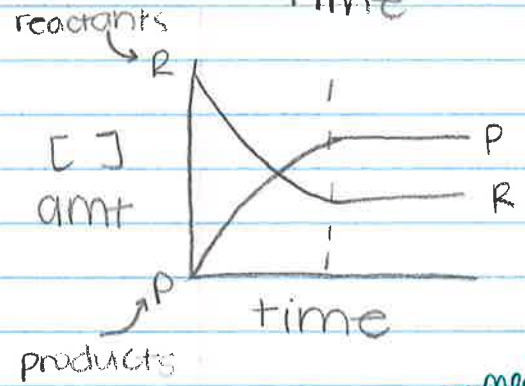
$R \rightleftarrows P$

equilibrium

K = stuff on the right / stuff on the left

$= \frac{\text{amount of } P}{\text{amount of } R} = 1$

$K_{fwd} = K_{rev}$



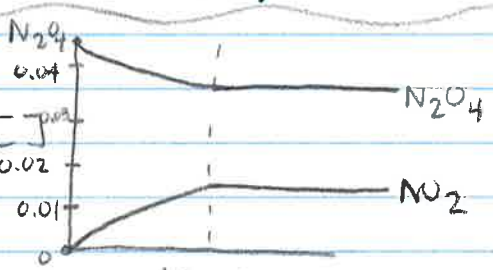
$K = \frac{P}{R} > 1$

$K_{fwd} > K_{rev}$

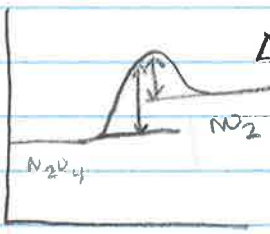
$K = \frac{K_{fwd}}{K_{rev}}$

means equilibrium EXPRESSION

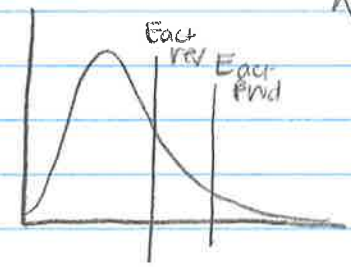
		$N_2O_4(g)$	$\rightleftharpoons$	$2NO_2(g)$
initial	I	0.0400		0
change	C	−0.0063		+0.0063 × 2
ending	E	0.0337		0.0126



$K_c = \frac{[NO_2]^2}{[N_2O_4]} = \frac{0.0126^2}{0.0337} = \boxed{0.00471}$ → equilibrium constant



profile



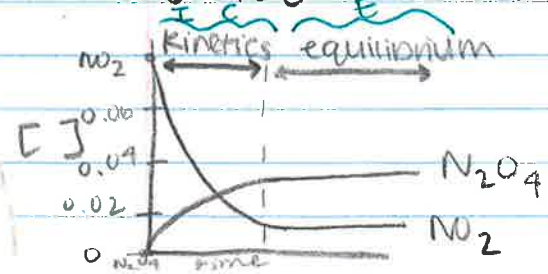
$K_c = \frac{K_{fwd}}{K_{rev}}$

* inverse of one another?

		$2NO_2(g)$	$\rightleftharpoons$	$N_2O_4(g)$
M				
I		0.0500		0
C		−0.0492		$+\frac{1}{2} \times 0.0492$
E		0.0108		0.0246

$K_c = \frac{[N_2O_4]}{[NO_2]^2} = \frac{0.0246}{0.0108^2}$

$= \boxed{210.91}$



February 7th

$1A(s) + 2B(g) \rightarrow 3C(g) + 4D(\ell)$

*IGNORE things that are NOT gasses!

$K_c = \frac{[C]^3}{[B]^2}$

$CaCO_3(s) \longrightarrow CO_2(g) + CaO(s)$

$K_c = [CO_2]$

$CO_2(g) + CaO(s) \longrightarrow CaCO_3(s)$

$K_c = \frac{1}{[CO_2]}$

* If Q_c is too small, shift K change line goes up & down only

goes with "E" line of mice table

mol/L		$2NO_2(g) \rightleftharpoons N_2O_4(g)$	$K_c = \frac{[N_2O_4]}{[NO_2]^2} = 211$ ← compare to...
	M		
	I	0.060	0.040 ← $Q_c = \frac{[N_2O_4]_I}{[NO_2]^2_I} = \frac{0.040}{0.060^2} = 11.11$
	C	$-2x$	$+x$
	E	$0.060 - 2x$	$0.040 + x$

goes with INITIAL [ ], "I" line of mice table

$K_c = 211 = \frac{[N_2O_4]}{[NO_2]^2} = \frac{0.040 + x}{(0.060 - 2x)^2}$ → $15 \stackrel{?}{=} 211$?