

(15.22) $K_p = \sqrt{0.0752} = 0.274 K_p$

$Cl_2(g) + H_2O(g) \rightleftharpoons 2HCl(g) + \frac{1}{2}O_2(g)$

$\Delta n = \frac{2\frac{1}{2}}{P_{prod}} - 2 = \frac{1}{2}$ $P_{rec} = \frac{1}{2}$

$PV = nRT$
 $P = \frac{n}{V} RT$
 $K_p = K_c (RT)^{\Delta n}$

$K_c = \frac{K_p}{(RT)^{\Delta n}} = \frac{0.274}{(0.08206)(753)}^{\frac{1}{2}} = 0.035$

Feb 10-9:35 AM

(15.42) $I_2(g) \rightleftharpoons 2I(g)$ $800K$
 $K_c = 3.1 \times 10^{-5}$

(100) $\frac{?}{g}$ (2.67×10^{-3})

$K_c = \frac{[I]^2}{[I_2]}$ $g \rightarrow \text{Moles} \rightarrow \frac{\text{Moles}}{L}$

$\frac{[I_2]}{1} = \frac{[I]^2}{K_c}$ $[I_2] = M$

$M \times L \rightarrow \text{Moles } I_2$

$\text{Mole } I_2 \rightarrow g I_2$

Feb 10-9:53 AM

Calculate Eq. Constants "K_{eq}"

K_p or K_c
K_w, K_f, K_a, K_b

Reaction → change in concentration → equilibrium concentration

Initial concentration at t = 0

Table

Feb 10-10:00 AM

Find K_c at 448°C

	$\text{H}_2(\text{g})$	$+ \text{I}_2$	$\rightarrow 2 \text{HI}(\text{g})$
[I]	$1 \times 10^{-3} \text{ M}$	$2 \times 10^{-3} \text{ M}$	
[Δ]	$-0.935 \times 10^{-3} \text{ M}$	$-0.935 \times 10^{-3} \text{ M}$	$+ 1.87 \times 10^{-3} \text{ M}$
[E]	$0.065 \times 10^{-3} \text{ M}$	$1.065 \times 10^{-3} \text{ M}$	$1.87 \times 10^{-3} \text{ M}$

MOLE RATIO

$$K_c = \frac{[\text{HI}]^2}{[\text{H}_2][\text{I}_2]} = \frac{(1.87 \times 10^{-3})^2}{0.065 \times 10^{-3} (1.065 \times 10^{-3})} = 50.5$$

Feb 10-10:06 AM

$$2\text{SO}_3(g) \rightleftharpoons 2\text{SO}_2(g) + \text{O}_2(g)$$

I	0.5	}	0	0
Δ	- 0.3	}	+ 0.3	+ 0.15
E	0.2	}	0.3	0.15

$$K_p = \frac{(\text{SO}_2)^2 (\text{O}_2)}{(\text{SO}_3)^2} = \frac{(0.3)^2 (0.15)}{(0.2)^2} = 0.338$$

Feb 10-10:28 AM

$$\text{H}_2 + \text{I}_2 \rightleftharpoons 2\text{HI} \quad 448^\circ\text{C} \quad K_c = 50.5$$

I	1	2	}	0	MOLE RATIO Find [E]
Δ	- x	- x	}	+ 2x	
E	1-x	2-x	}	2x	

$$K_c = \frac{(\text{HI})^2}{(\text{H}_2)(\text{I}_2)} = \frac{50.5}{1} = \frac{(2x)^2}{(1-x)(2-x)}$$

$$\frac{50.5}{1} = \frac{4x^2}{x^2 - 3x + 2}$$

$$4x^2 = 50.5x^2 - 151.5x + 101$$

$$-4x^2 - 4x^2 \quad -4x^2$$

$$46.5x^2 - 151.5x + 101 = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Feb 10-10:38 AM

15 / 44, 46, 50
 $\text{Ca}(\text{rO})_4(\text{S})$

Feb 10-10:46 AM