③ $Cu(OH)_{2(s)} \rightarrow Cu^{+2}_{(aq)} + 2OH^-_{(aq)}$

$\frac{3.4\times10^{-7}\text{ mole}}{\ell}$ ✗ 3.4×10^{-7} ✗ 2x M ratio

$2(3.4\times10^{-7})$

6.8×10^{-7}

$K_{sp} = [Cu^{+2}][OH^-]^2$

$K_{sp} = (3.4\times10^{-7})(6.8\times10^{-7})^2$

$\boxed{K_{sp} = 1.57\times10^{-19}}$

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④ $MgF_{2(s)} \rightarrow Mg^{+2}_{(aq)} + 2F^-_{(aq)}$

✗ ✗ 2x M

$\frac{0.17\text{g } MgF_2}{1\ell} \left| \frac{1\text{ mole } MgF_2}{63\text{ g } MgF_2} \right. = 0.0027M$

0.0054

2(0.0027)

$K_{sp} = [Mg^{+2}][F^-]^2$

$= (0.0027)(0.0054)^2 = 7.87\times10^{-8}$

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(6) $\overset{24+24+64}{MgC_2O_4(s)} \Rightarrow Mg^{+2}_{(aq)} + C_2O_4^{-2}_{(aq)}$

X X X M ratio

$K_{sp} = [Mg^{+2}][C_2O_4^{-2}]$

$8.6\times10^{-5} = (x)(x)$

$9.3\times10^{-3}\ \frac{moles}{\ell} = x$

$\left|\frac{9.3\times10^{-3}\ mole}{\ell}\right|\left|\frac{112\ g}{1\ mole}\right| = 1.04\ g/\ell$

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Dilution

$\underset{start}{moles} = \underset{end}{moles}$

$M*\ell = M*\ell$

$(6M)(100mL) = \_\_\_\_(500mL)$

1.2M

+400mL

M = moles / ℓ

moles = M*ℓ

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$\Delta T = (K * m)i$ ← # ions

Constant

Molality = $\frac{\text{Moles solute}}{\text{Kg Solvent}}$ ← MORE

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$N_{2(g)} + 3H_{2(g)} \rightleftharpoons 2NH_{3(g)} + 22\ Kcal$

① ↑ Total P. $4_{mole(g)} \longrightarrow 2_{mole(g)}$

N_2 ↓ H_2 ↓ NH_3 ↑ heat ↑

	N_2	H_2	NH_3	heat
I	2 mole	6 mole	0	0
Δ (mole ratio)	−1	−3 mole	+2 mole	↑
E	1 mole	3 Mole	2 Mole ?	↑ ?

Apr 12-9:59 AM