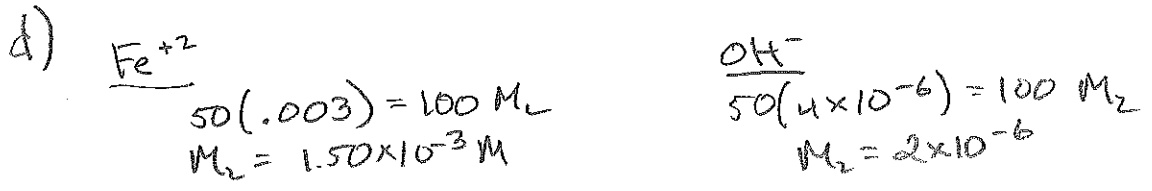
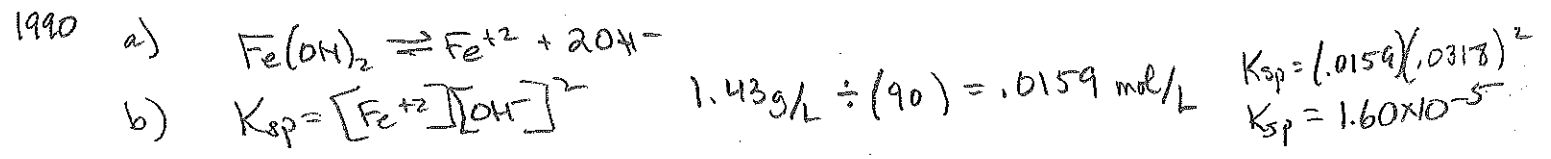
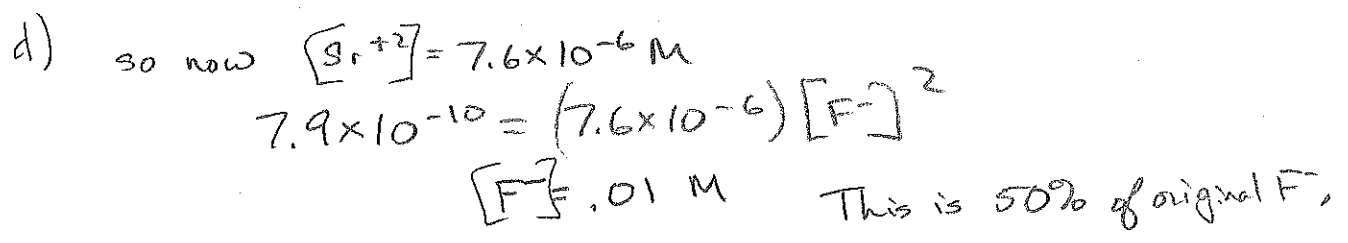


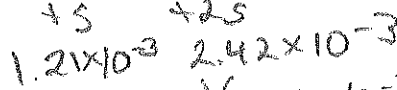
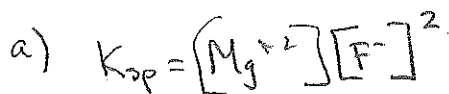
12) SrF_2 will begin precipitating at a lower conc of Sr^{+2} , therefore earlier. This $[\text{Sr}^{+2}]$ will be $2 \times 10^{-6} \text{ M}$.



$Q = (1.5 \times 10^{-3})(2 \times 10^{-6})^2 = 6 \times 10^{-15}$ $K_{sp} = 1.60 \times 10^{-5}$

$Q < K_{sp}$, no ppt forms

1994



$$K_{sp} = (1.21 \times 10^{-3})(2.42 \times 10^{-3})^2$$

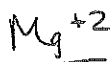
$$K_{sp} = 7.09 \times 10^{-9}$$

$$b) [F^-] = .100 M$$

$$[Mg^{+2}] = ?$$

$$7.09 \times 10^{-9} = [Mg^{+2}](.100)^2 \quad [Mg^{+2}] = 7.09 \times 10^{-7} M$$

c)



$$M_1 V_1 = M_2 V_2$$

$$3 \times 10^{-3}(100) = M_2(300)$$

$$M_2 = 1.00 \times 10^{-3}$$



$$M_1 V_1 = M_2 V_2$$

$$(2 \times 10^{-3})(200) = M_2(300)$$

$$M_2 = 1.33 \times 10^{-3}$$

$$Q = (1.00 \times 10^{-3})(1.33 \times 10^{-3})^2 = 1.78 \times 10^{-9}$$

$Q < K_{sp}$, no

d) At 18°C, $[Mg^{+2}] = 1.21 \times 10^{-3} M$. by Le Chat, $\uparrow T$ causes a right shift.

At 27°C, $[Mg^{+2}] = 1.17 \times 10^{-3} M$.

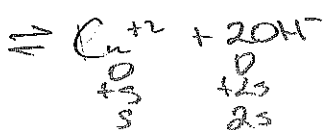
$\uparrow T \rightarrow \downarrow sol.$ Or by Le Chat, $\uparrow T$ causes a left shift. This is consistent w/ the heat being a product.

\rightarrow exothermic.

1998



$$ii) 1.76 \times 10^{-6} g \div (63.5 + 34) \frac{1.76 \times 10^{-8} mol}{.1 L} = 1.76 \times 10^{-7} M$$



$$K_{sp} = 4s^3 = 4(1.76 \times 10^{-7})^3$$

$$K_{sp} = 2.20 \times 10^{-20}$$

b) i) Don't Do

$$7.7 \times 10^{-12} = (s)(s)^2$$

ii) Don't Do

$$4s^3 = 1.76 \times 10^{-7} \quad s = 1.76 \times 10^{-7} M$$