In Class Review

1. a) Temperature influences solubility which influences how many ions end up in solution, which in turn affects Ksp.

   b) Without a saturated solution, there would not be an equilibrium between the solid and the ions in solution.

   c)

	$Ra(IO_3)_2(s)$	Ra^{+2}(it's an alkaline earth; see periodic table)	2 IO_3^-
I		0	0
C (what dissolves)		1.686 X10^{-2}moles/L	2 X 1.686 X10^{-2}moles/L
E		3812ppm=3.812 g/L(mole/ 226 g) (sorry we had wrong molar mass in class)=1.686 X10^{-2}moles/L	2 X 1.686 X10^{-2}moles/L

Ksp =[Ra^{+2}][IO_3^-]^2=[1.686 X10^{-2}moles/L][2 X 1.686 X10^{-2}moles/L]^2 = 1.9 X 10^{-5}

   d) If it was endo a lower temperature would have shifted the equilibrium towards the solid, lowering ion concentration and lowering Ksp.

2. a) yes because we are running out of reactants, lowering the concentration adn therefore lowering the rate.

   b) the rate of change of hydrochloric acid

   $= \frac{0.244-0.245}{7.0-3.5} = \frac{-0.001}{3.5} = -2.857X10^{-4} moles/min\ HCl$

   $== -\frac{2.857X10^{-4} moles}{min} HCl \frac{1\ CO2}{-2\ HCl} \frac{44g}{mole} \frac{min}{60s} = 1.0\ X10^{-4}\ g\ of\ CO2/s$

3. $\Delta H = -542 = \Delta H_{bb} - \Delta H_{bf}$

   -542 =436 +158 -2x, x = HF's bond energy

   x = 568 kJ

4. 14.0 g N_2 = 0.50 moles

P_{N2} =(n_{N2}/n_T)(P_T) = (0.50/0.60)(101.3 kpa) = 84 kPa

5.

	$HX_{(aq)}$	$H^+_{(aq)}$	$X^-_{(aq)}$
I	2/10 = 0.2 moles/L	0	0
C (what dissolves)	$10^{-5.9}$	$10^{-5.9}$	$10^{-5.9}$
E	$0.2\text{-}10^{-5.9}$	pH=14-pOH=14-8.1=5.9 $H^+ = 10^{-pH} = 10^{-5.9}$	$10^{-5.9}$

$K_a = (10^{-5.9})(10^{-5.9})/(0.2\text{-}10^{-5.9}) = 7.9 \text{ X } 10^{-12}$

So it's weaker than the acid whose K_A is greater at 1.8 $X10^{-5}$.

6. Curve 2 produces more gas per unit of time, so it must have enjoyed the benefits of a lemonade, a spot in the shade and a catalyst.

   Curve 1 no catalyst