2. After how long did PCl_5 molecules stop decomposing into PCl_3 and Cl_2? Explain your answer.

_____

_____

3. How long did it take for the reaction to reach equilibrium?   _____

4. Contrast the rates for each direction of the reaction at the beginning of the experiment, and after the reaction has reached equilibrium.

_____

B. Equilibrium Solubility

The value K_{sp} for a substance is called the solubility product constant and equals the product of the ion concentrations at equilibrium saturation for ionic substances. Fill in the table below for saturated solutions with appropriate concentrations or K_{sp} values, using the rest of the information in the table. Where neither ion concentration is given, assume that the substance named is the only source of ions in the solution.

Substance	K_{sp}	Ion Concentration	Ion Concentration
1. AgCl		$[Ag^+] = 1.3 \times 10^{-5}\ M$	$[Cl^-] = 1.3 \times 10^{-5}\ M$
2. $SrCrO_4$	3.6×10^{-5}	$[Sr^{2+}] = 1.7 \times 10^{-4}\ M$	$[CrO_4^{2-}] =$
3. $SrSO_4$	7.6×10^{-7}	$[Sr^{2+}] =$	$[SO_4^{2-}] = 8.7 \times 10^{-4}\ M$
4. $BaSO_4$	1.6×10^{-9}	$[Ba^{2+}] =$	$[SO_4^{2-}] =$

5. Calculate the mass of strontium chromate that will dissolve in one liter of water.

C. Maintaining Equilibrium

The synthesis of hydrogen iodide is a reversible exothermic reaction that proceeds as follows.

$$H_2(g) + I_2(g) \rightleftharpoons 2HI(g)$$
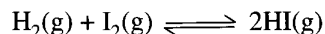
In a laboratory experiment, hydrogen gas and iodine gas are placed in a sealed reaction flask. The gases react to produce hydrogen iodide until equilibrium is established. The concentrations of reactants and product are plotted in this graph. Assume equilibrium is reached at point T_e.