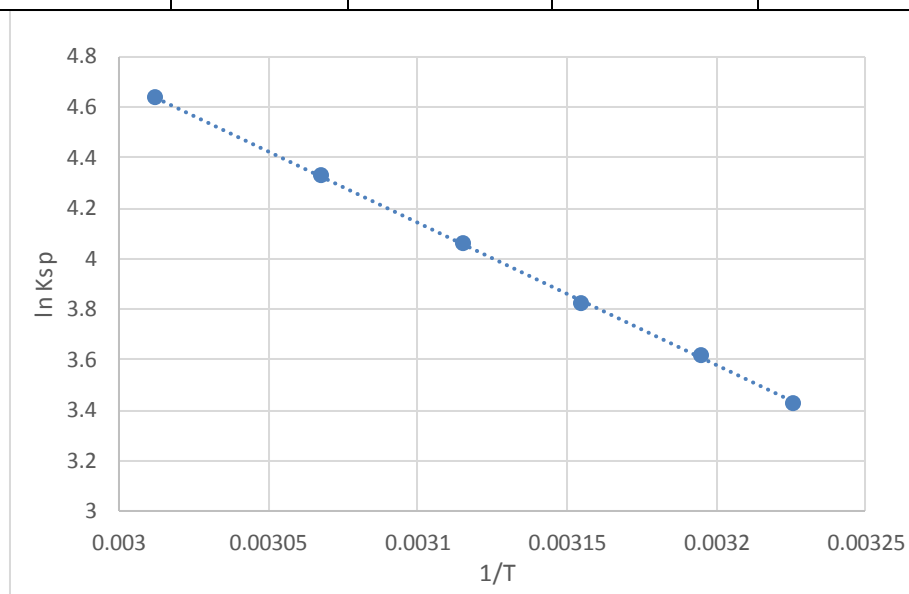


Experiment 10: Heat of solution

Mass of $\text{KNO}_3 = 30.81 \text{ g}$

Solution Vol. mL	Satu. Temp, T in K	Con., mol/L	K_{sp}	$1/T$	$\ln K_{sp}$
30	332	10.15826733	103.1903951	0.003012048	4.636575778
35	326	8.707086281	75.81335151	0.003067485	4.328274418
40	321	7.618700496	58.04459725	0.003115265	4.061211633
45	317	6.772178219	45.86239783	0.003154574	3.825645562
50	313	6.094960397	37.14854224	0.003194888	3.614924531
55	310	5.540873088	30.70127458	0.003225806	3.424304171



RESULT

The thermodynamic parameters for dissolution of KNO_3 in water are:

$$\Delta H = -\text{slope} \times R = - \dots \times 0.008314 = \dots \text{ kJ / mol}$$

$$\Delta S = \text{intercept} \times R = \dots \times 0.008314 = \dots \text{ kJ / mol}$$

$$\Delta G = \Delta H - T\Delta S = \dots \times \dots = \dots \text{ kJ / mol}$$

Questions:

1. What would be the change in entropy when solid dissolved in liquid?
2. What would be the change in entropy when gas dissolved in liquid?
3. What is solubility product? What is the significance of solubility product?