CHM110H5F – Practice Final Exam #1

Useful Information:

$R = 0.08206\ {}^{L \cdot atm}/_{mol \cdot K} = 8.314\ {}^{J}/_{mol \cdot K}$

$K_p = K_c(RT)^{\Delta n}$

$0\ °C = 273\ K$

$pH = pK_a + log\left(\frac{[A^-]}{[HA]}\right)$

$Roots\ of\ a\ quadratic\ ax^2 + bx + c = 0\ are\ x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$F = 96485.3 \frac{J}{mol \cdot V}$

Question 1 – A 12.42 g sample of a mixture of $NaCl_{(s)}$ and $CaCl_{2(s)}$ was dissolved in water. Excess $AgNO_3$ was added, and all of the chloride was precipitated as AgCl. 31.70 g of AgCl was collected. Calculate the %w/w of NaCl in the original mixture.