AP Chemistry Exam Review

Free Response Practice #1

2008 #2, shortened (5 points)

A student is given 2.94 g of a mixture containing anhydrous $MgCl_2$ and KNO_3 . To determine the percentage by mass of $MgCl_2$ in the mixture, the student uses excess $AgNO_3(aq)$ to precipitate the chloride ion as AgCl(s).

a. Starting with the 2.94 g sample of the mixture dissolved in water, briefly describe the steps necessary to quantitatively determine the mass of the AgCl precipitate.

- b. The student determines the mass of the AgCl precipitate to be 5.48 g. On the basis of this information, calculate each of the following.
 - i. The number of moles of $MgCl_2$ in the original mixture.

ii. The number of percent by mass of $MgCl_2$ in the original mixture.