Chapter 4 Example Problems

1. The density of 0.907 M Pb(NO$_3$)$_2$ is 1.2519 g/mL. What is the mass percent Pb(NO$_3$)$_2$ in this solution?

2. How many milliliters of 0.225 M NH$_4$C$_2$H$_3$O$_2$ are needed to make 750.0 mL of 0.1667 M NH$_4$C$_2$H$_3$O$_2$?

3. The Food and Drug Administration is testing the acidity of a new brand of balsamic vinegar by titrating with a standard solution of 0.05390 M Ba(OH)$_2$. (The acid in vinegar is acetic acid, HC$_2$H$_3$O$_2$.) A 50.00-mL sample of vinegar was completely neutralized when 12.35 mL of the standard Ba(OH)$_2$ solution was added. What is the concentration (in M) of acetic acid in the sample?

4. A 100.0-g sample of water was analyzed for chloride ion by precipitating the ion with a standard solution of silver nitrate. In the analysis, 23.67 mL of 0.1001 M AgNO$_3$ was required to reach the end point. What was the mass percent Cl$^-$ in the water?