CE 326 Principles of Environmental Engineering
Spring 2005 - Water Chemistry Calculations
Due 2-28-05

A water sample was analyzed and was found to have the following constituents:

Ca^{+2}, mg/L	120	HCO_3^-, mg/L	422
Mg^{+2}, mg/L	39	SO_4^{-2}, mg/L	101
Na^+, mg/L	12.8	Cl^-, mg/L	32
K^+, mg/L	3.4	CO_3^{-2}, mg/L	1.2
Fe^{+2}, mg/L	6.2		
Mn^{+2}, mg/L	0.3	Temperature	25˚C

1. Calculate each of the concentrations as mg/L as $CaCO_3$.
2. Calculate the hydrogen ion concentration:
   a. as moles/L.
   b. as mg/L.
   c. as mg/L as $CaCO_3$.
   d. as pH.
3. Calculate the hydroxide ion concentration:
   a. as moles/L.
   b. as mg/L.
   c. as mg/L as $CaCO_3$.
   d. as pOH.
4. Calculate the concentration of CO_2 as mg/L as $CaCO_3$.