Chem E-1a
Friday Review Answers
Chapter 4

1. a) $H_3PO_4\ (aq)\ +\ 3\ NaOH\ (aq)\ \rightarrow\ 3\ H_2O\ (l)\ +\ Na_3PO_4\ (aq)$
   b) $H_3PO_4\ (aq)\ +\ 3\ OH^-\ (aq)\ \rightarrow\ 3\ H_2O\ (l)\ +\ PO_4^{3-}\ (aq)$
   c) 0.187 *M* H_3PO_4

2. Molar mass = 191 g/mol

3. a) H = +1, O = 0, F = –1
   b) H = +1, C = +4, O = –2
   c) H = +1, P = +5, O = –2
   d) Fe = +2, S = +4, O = –2

4. 0.4 mol Cr_2O_3
   0 mol CCl_4
   3.8 mol $CrCl_3$
   1.9 mol CO_2
   1.9 mol $COCl_2$

5. a) $2\ K_3AsO_4\ (aq)\ +\ 3\ Pb(NO_3)_2\ (aq)\ \rightarrow\ Pb_3(AsO_4)_2\ (s)\ +\ 6\ KNO_3\ (aq)$
   b) $2\ AsO_4^{3-}\ (aq)\ +\ 3\ Pb^{2+}\ (aq)\ \rightarrow\ Pb_3(AsO_4)_2\ (s)$
   c) 22.49 g $Pb_3(AsO_4)_2\ (s)$
   $[AsO_4^{3-}] = 0.214\ M$
   $[Pb^{2+}] = 0\ M$
   $[K^+] = 1.07\ M$
   $[NO_3^-] = 0.429\ M$