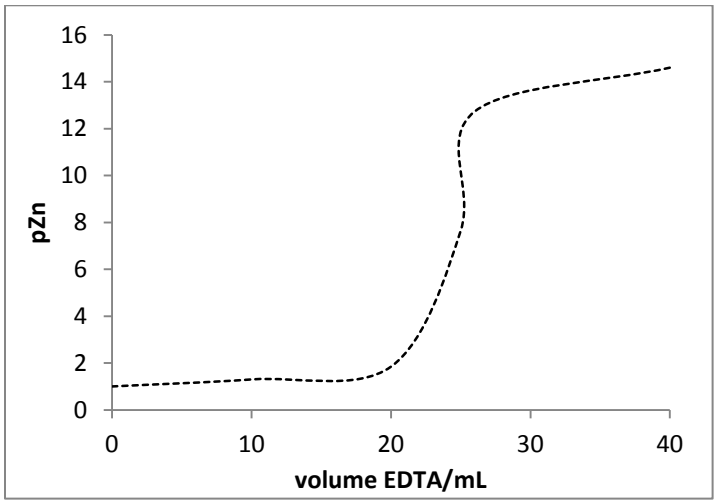
EDTA

1. Look at stability constants for the formation of the metal-EDTA complexes and see which is stronger. The bigger the constant – displacement occurs.
2. @pH 4: $Pb^{2+} = 6.03 \times 10^{-16}$ M @pH 8: $Pb^{2+} = 5.09 \times 10^{-9}$ M
3. For 0.2 M EDTA and 0.1 M Zn:
   a) 0 mL of EDTA solution: pZn = 1
   b) 10.00 mL of EDTA solution: 1.3
   c) 20.00 mL of EDTA solution: 1.845
   d) 25.00 mL of EDTA solution: 7.65
   e) 26.00 mL of EDTA solution: 12.73
   f) 40 mL of EDTA solution: 13.9
   g) Sketch a labelled titration curve.



4. With a lower $[Zn^{2+}]$, pZn will be larger. Higher pH starting point will be a good indicator of the lower concentration.
5.
   a) Lecture slides
   b) Lecture slides – error & stats

6. % Cu = 12.36%
   %Fe = 21.26%

7. Ca: 0.01667 M Mg: 0.004854 M

Redox and Precipitation Titrations

1. a), b), c) – Lecture notes
   d) Cl = 11.98 %.
   e) Lecture notes
2. NaI = 83.58%
3.
   a) Mass Cl = 0.1053 g
   b) 4.213 g L^{-1}
   c) , d), e) f) – Lecture notes
4.
   a) 10.00 mL of $AgNO_3$ solution pAg = 8.37
   b) 24.90 mL of $AgNO_3$ solution pAg = 6.04
   c) 25.00 mL of $AgNO_3$ solution pAg = 4.87
   d) 25.10 mL of $AgNO_3$ solution pAg = 3.69
   e) 30.00 mL of $AgNO_3$ solution pAg = 2.04
5.
   a) $[Ag^+] = 1.35x10^{-5}$ mol L^{-1}.
   b) $[CrO_4^{2-}] = 1.96x10^{-3}$ M
   c) No, only just after equivalence point.
6.
   a) % KH_2PO_4 = 66.2%
   b) Form a stable, weighable complex. Waters of hydration problematic to weigh

7. % w/w = 4.17% As_2O_3