Important Results Math 534 Autumn 2014

Here are some of the important results we covered this quarter:

Cauchy-Schwarz inequality
Weierstrass M-test
Root test
Abel's Limit theorem
Isolated zeros of analytic functions
Max. Princ. (various forms)
Fundamental Theorem of Algebra
Analytic functions are open
Partial Fractions
Liouville's Theorem
Schwarz's lemma
Fundamental Theorem of Calculus for analytic functions
Power series converges in largest disk where analytic
Cauchy's estimates
Cauchy's theorem
Weierstrass's theorem on uniform convergence
Schwarz reflection principle for analytic functions
Winding number
Simply connected regions and winding numbers
Cauchy's integral formula
Riemann's theorem on removable singularities
Laurent series
Isolated singularities (removable, poles, essential)
Dense range for essential singularies
Arg. Princ.
Rouché's Theorem
Local picture of analytic functions (one-to-one followed by power)
Conformality and analyticity
log f in a simply connected domain
Linear fractional transformations
"circles" and "disks" are mapped to "circles" and "disks" by LFTs; 3pts mapped to 3pts
Elementary functions log, exp, trig functions, Joukovski, and their inverses, z^α, α real or complex.
Uniqueness of conformal maps
Morera's theorem
Residue Theorem and its use