Math 185 Methods

1. Solving Equations using De Moivre's formula.
2. Proving real differentiable / complex differentiable (see definitions).
3. Contour Integrals.
4. Constructing homotopies.
5. Calculating winding number.
6. Dirichlet's Problem (know the solution).
7. Computing Laurent expansion of a function.
8. Computing residue from Laurent expansion (look at the coefficient a_{-1}).
9. Computing residues using limits (if simple pole, then find $\lim_{z\to z_0}(z-z_0)f(z)$. if pole of higher order m, then find $\frac{1}{(m-1)!}\cdot\frac{d^{m-1}}{dz^{m-1}}\left((z-z_0)^m\cdot f(z)\right)$).
10. Computing non-elementary integrals.