BASIC COMPLEX ANALYSIS

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The Laurent series of f about z_0 is

$$f(z) = \sum_{n=-\infty}^{\infty} a_n (z - z_0)^n$$

The a_n are given by

$$a_n = \frac{1}{2\pi i} \oint \frac{f(z')}{(z' - z_0)^{n+1}} dz'$$