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# Complex Functions An Algebraic And Geometric Viewpoint

**2 complex functions and the cauchy-riemann equations** - 2 complex functions and the cauchy-riemann equations 2.1 complex functions in one-variable calculus, we study functions  $f(x)$  of a real variable  $x$ . like-wise, in complex analysis, we study functions  $f(z)$  of a complex variable  $z \in \mathbb{C}$  (or in some region of  $\mathbb{C}$ ). here we expect that  $f(z)$  will in general take values in  $\mathbb{C}$  as well. **chapter 2 complex analysis - school of mathematics** - chapter 2 complex analysis ... we will extend the notions of derivatives and integrals, familiar from calculus, to the case of complex functions of a complex variable. in so doing we will come across analytic functions, which form the centerpiece of this part of the course. in fact, to a large extent complex analysis is the study of analytic **the complex exponential function** - the complex exponential function (these notes assume you are already familiar with the basic properties of complex numbers.) we make the following definition  $e^{i\theta} = \cos \theta + i \sin \theta$  : (1) this formula is called euler's formula. in order to justify this use of the exponential ... second term is the complex conjugate of the first term. **section 7.2 the calculus of complex functions** - 2 the calculus of complex functions section 7.2 if and only if  $\lim_{n \rightarrow \infty} x_n = a$  and  $\lim_{n \rightarrow \infty} y_n = b$ . thus to determine the limiting behavior of a sequence  $\{z_n\}$  of complex numbers, we need only consider the behavior of the two sequences of real numbers,  $\{$