

## MEROMORPHIC FUNCTIONS

## Why

The entire functions "extend" the polynomial functions. For polynomial in  $\mathbf{C}$ , we can extend the class to the (complex) rational functions in  $\mathbf{C}$ . Can we similarly extend the class entire functions?

## **Definition**

A meromorphic function (or fractional function) is a function  $f: \mathbf{C} \to \mathbf{C}$  for which there exists entire functions  $g: \mathbf{C} \to \mathbf{C}$  and  $h: \mathbf{C} \to \mathbf{C}$  so that

$$f(z) = \frac{g(z)}{h(z)}$$

for all  $z \in \mathbb{C}$ .<sup>2</sup>

<sup>&</sup>lt;sup>1</sup>Future editions may modify.

<sup>&</sup>lt;sup>2</sup>Future editions will continue the development.

