

# Complex Numbers and the Riemann Hypothesis

How to win \$1 000 000

Vincent Macri   Richard Yi

William Lyon Mackenzie C.I. Math Club

© Vincent Macri and Richard Yi, 2018



# Table of Contents

## 1 The Riemann Zeta Function



# The formula

## The Riemann Zeta Function

Definition (The Riemann zeta function)

$$\zeta(s) = \sum_{n=1}^{\infty} \frac{1}{n^s} \quad \{s \in \mathbb{C} \mid \operatorname{Re}(s) > 1\}$$



# The formula

## The Riemann Zeta Function

Definition (The Riemann zeta function)

$$\zeta(s) = \sum_{n=1}^{\infty} \frac{1}{n^s} \quad \{s \in \mathbb{C} \mid \text{Re}(s) > 1\}$$

$$s = \sigma + it$$

