

STUDENT: **When was the Riemann hypothesis proposed?**

TEACHER:  $\hookrightarrow$  1859

STUDENT: **According to the Riemann hypothesis, all zeroes of the  $\zeta$ -function have real part equal to  $1/2$  except for what values of  $s$ ?**

TEACHER:  $\hookrightarrow$   $s = 2, 4, \dots$ ,

STUDENT: **What does the Riemann hypothesis state the source of irregularity in the distribution of points comes from?**

TEACHER:  $\hookrightarrow$  random noise

STUDENT: **What type of prime distribution does the Riemann hypothesis propose is also true for short intervals near  $X$ ?**

TEACHER:  $\hookrightarrow$  asymptotic distribution

STUDENT: **What type of prime distribution is characterized about  $x/\log x$  of numbers less than  $x$ ?**

TEACHER:  $\hookrightarrow$  asymptotic distribution

STUDENT: **When was the function hypothesis proposed?**

TEACHER:  $\hookrightarrow$  CANNOTANSWER

STUDENT: **According to the function hypothesis, all zeroes of the  $\zeta$ -function have real part equal to  $1/2$  except for what values of  $s$ ?**

TEACHER:  $\hookrightarrow$  CANNOTANSWER

STUDENT: **What does the Riemann hypothesis state the source of irregularity in the distribution of math zeroes from?**

TEACHER:  $\hookrightarrow$  CANNOTANSWER

### Section: Prime number 17

Context: The unproven Riemann hypothesis, dating from 1859, states that except for  $s = 2, 4, \dots$ , all zeroes of the  $\zeta$ -function have real part equal to  $1/2$ . The connection to prime numbers is that it essentially says that the primes are as regularly distributed as possible.[clarification needed] From a physical viewpoint, it roughly states that the irregularity in the distribution of primes only comes from random noise. From a mathematical viewpoint, it roughly states that the asymptotic distribution of primes (about  $x/\log x$  of numbers less than  $x$  are primes, the prime number theorem) also holds for much shorter intervals of length about the square root of  $x$  (for intervals near  $x$ ). This hypothesis is generally believed to be correct. In particular, the simplest assumption is that primes should have no significant irregularities without good reason. CANNOTANSWER

STUDENT: **What type of zero distribution does the Riemann hypothesis propose is also true for short intervals near  $X$ ?**

TEACHER:  $\hookrightarrow$  CANNOTANSWER

STUDENT: **What type of zero distribution is characterized about  $x/\log x$  of numbers less than  $x$ ?**

TEACHER:  $\hookrightarrow$  CANNOTANSWER