

Sunrise Secondary School Academic year 2023/2024  $1^{\circ}$  Secondary Education

	Group:	Date:
Answer the questions in the spaces provided. on the back of the page.	If you run out of	room for an answer, continue
1. Given the equation $x^n + y^n = z^n$ for $(x, y, z)$	) and $n$ positive	integers.
(a) $(10 \text{ points})$ For what values of $n$ is the sta	atement in the pr	revious question true?
(b) (10 points) For $n = 2$ there's a theorem v	yith a special nan	ne. What's that name?
(c) (10 points) What famous mathematician was not enough space in the margin to write i		roof for this theorem but there
2. (20 points) Prove that the real part of all no	m-trivial zeros of	the function $\zeta(z)$ is $\frac{1}{z}$
2. (20 points) I love that the real part of all like	ii tiiviai zeros oi	the function $\zeta(z)$ is $\frac{1}{2}$ .