Sunrise Secondary School
Academic year 2023/2024
1st Secondary Education

Mathematics
2nd Assessment 1st Exam
Radicals and fractions

Surname: ..... Name: .....

Group: ..... Date: .....

Answer the questions in the spaces provided. If you run out of room for an answer, continue on the back of the page.

1. Given the equation $x^n + y^n = z^n$ for (x, y, z) and n positive integers.

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(a) For what values of n is the statement in the previous question true?

(b) For $n = 2$ there's a theorem with a special name. What's that name?

(c) What famous mathematician had an elegant proof for this theorem but there was not enough space in the margin to write it down?.

2. Prove that the real part of all non-trivial zeros of the function $\zeta(z)$ is $\frac{1}{2}$.