



**2019 Wits Mathematics Competition**

**Final Round**

**Grades 4 and 5**

**Time: 90 Minutes**

**Instructions**

This exam consists of 12 questions. The first 10 are single answer and are worth 3 marks each. The last 2 are proof questions which require full solutions. They are out of 10 marks each.

“A mathematician is a device for turning coffee into theorems.” — Paul Erdos

**Full Name:**

**School:**

**Division:**

**Grade:**

**E-mail:**

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**Middle Primary**  
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\_\_\_\_\_

Answer Section A below

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## A. Single Answer Question

1. Find the remainder when 2019 is divided by 37.
2. Compute  $\frac{1 \times 2 \times 3 \times \dots \times 21}{1 \times 2 \times 3 \times \dots \times 19}$ .
3. A rectangular swimming pool has area  $91m^2$  and length  $13m$ . Find its perimeter.
4. A toy store sells bicycles and tricycles. It has 60 vehicles for sale. If there are 140 wheels in the store, how many bicycles and how many tricycles are in the store? (Bicycles have 2 wheels and tricycles have 3.)
5. A learner was looking through her math book and discovered that after page 24, the next page was 31. How many page sheets were torn out of her book?
6. A book costs R300. Its price is increased by 20 percent and then decreased by 25 percent. Calculate the final price.
7. A 50 rand note is 140mm long. If ten million rands worth of 50 rand notes were laid end to end how long would they be in kilometers?
8. Evaluate the sum of the digits of the product  $999 \times 777$ .
9. In a certain month, three of the Wednesdays have dates that are even numbers. What day of the week is the 12<sup>th</sup> of the month?
10. How many two digit numbers contain either a 5 or a 6 (or both)?

## B. Proof Questions

11. Two fair 6-sided dice are rolled. The two numbers that appear are added together. What is the probability that this sum is a 6?

12. Three sisters decide to paint a wall. The eldest sister could have painted it herself in 3 hours, the middle sister would have taken 4 hours and the youngest would have taken 6. How long will it take them to paint the wall working together?