



## S5 B test, June 2024

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SEARLE..

# MATHEMATICS 6 PERIODS

## PART A

**DATE: JUNE 17TH, 2024**

Last name, First name: \_\_\_\_\_

Class: S5MA6ENB

Marks : \_\_\_\_\_ / 27

### DURATION OF THE TEST:

45 minutes: 13:00 – 13:45

### AUTHORIZED EQUIPMENT:

Exam without technological support

Pencil for Drawings/ graphics

Ruler

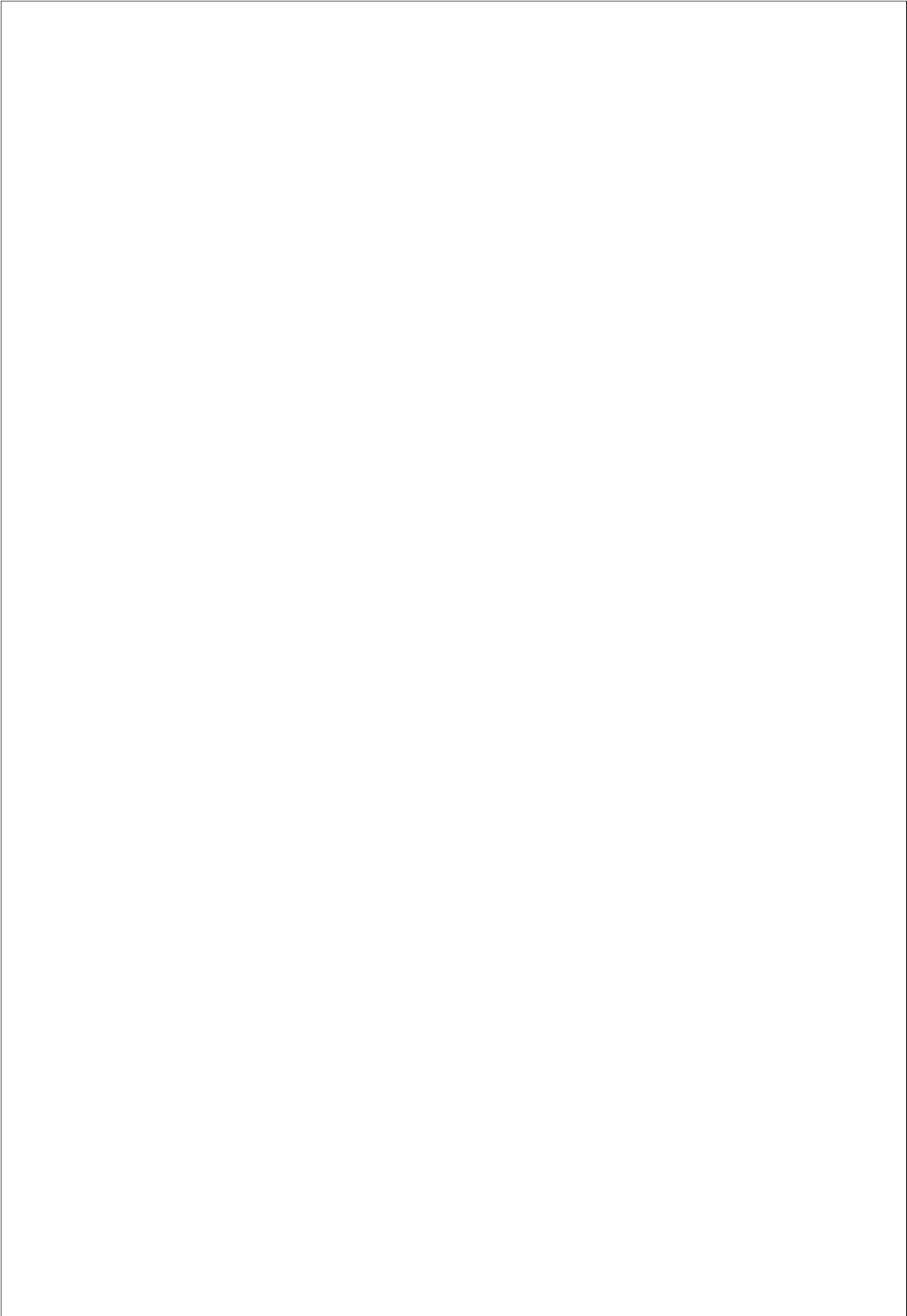
### NOTES:

- The examination consists of 4 questions in total.
- The answers to each question must be supported by detailed working.
- Answers given without supporting evidence may not be awarded marks.
- Answer all questions in the spaces provided in this booklet.



Stay calm and focussed.  
Believe in yourself!

Exercise A1	Scale
Consider the functions $f(x) = x^2 - 8x + 15$ and $g(x) = (x - 4)(x + 4)$ .	12 marks
a) <b>Find</b> the equation of the axis of symmetry for the function $f$ .	3
b) <b>Solve</b> the following equation showing all stages of your working: $f(x) = 0$	3
c) <b>Determine</b> if the function $g$ intersects with the x-axis. If yes, <b>find</b> the points of intersection.	3
d) <b>Solve</b> the following equation showing all stages of your working: $f(x) = g(x)$	3



Exercise A2	Scale
<p data-bbox="153 259 638 302"><b>Solve</b> the following equation:</p> $\log_2(x) + \log_2(4) = 6$	5 marks 5

<b>Exercise A3</b>	<b>Scale</b>
<b>Solve the equation:</b> $\cos\left(x + \frac{\pi}{4}\right) = \frac{-1}{2}, \text{ for the interval } x \in [0, 2\pi)$	4 marks 4

<b>Exercise A4</b>	<b>Scale</b>
12 out of 28 students on a course are boys. $\frac{1}{3}$ of the boys run a YouTube channel. 50% of all students are neither male nor YouTubers.	6 marks
a) <b>Set up</b> a fully completed four-field table for the situation described above.	4
b) A pupil is selected at random. Given that the pupil runs a YouTube channel, <b>calculate</b> the probability that this student is a girl.	2

**END OF EXAMINATION**