

Sing Yin Secondary School
First Term Examination, 2013 – 2014
Mathematics I

Form 3
Full marks: 100

Time allowed: 1.5 hours

- Answer ALL questions.
- Unless otherwise specified, all working must be clearly shown.
- The diagrams in this paper are not necessarily drawn to scale.
- Unless otherwise specified, numerical answers should either be exact or correct to 3 significant figures.

1. Convert 2 846 into a hexadecimal number. Show your steps. (3 marks)

2. Rationalize $\frac{2}{\sqrt{3}-1}$. (3 marks)

3. Simplify $\frac{\sqrt[3]{xy^2}}{xy^{-3}}$ and express the answer with positive indices. (4 marks)

4. Simplify $\sqrt{15}(\sqrt{12} + \sqrt{3})$. (4 marks)

5. Express $1.08\bar{3}$ in the form of $\frac{a}{b}$ where a and b are positive integers. (4 marks)

6. Simplify $\frac{5 \times 10^{80}}{2.54 \times 10^{-2014} - 1.35 \times 10^{-2012}}$ and express the answer in scientific notation. (5 marks)

7. The mode and the median of five integers a, b, c, d and e are 4 and 7 respectively, where $a \leq b \leq c \leq d \leq e$.

(a) Write down the values of a, b and c .

(b) Given that the mean of a, b, c, d and e is 6.6. Find the values of d and e .

(6 marks)

8. In the figure, $PQRS$ is a parallelogram and QT is the angle bisector of $\angle PQR$. QTU and USR are straight lines. $\angle TUS = 55^\circ$. Find $\angle UTS$.

(4 marks)



9. S3X Class was asked how many times they visited the museum last year. The mean of the number of visits is 2.6 and the results are shown in the table below:

Number of visits	1	2	3	4
Number of people	7	10	8	n

(a) Find n .

(b) Write down the median number of visits.

(c) Write down the mode(s) number of visits.

(d) If another class S3Y of 40 students was asked the same question and the overall mean number of visits for two classes was 2.48, find the mean number of visits for S3Y.

(6 marks)

10. Solve $\frac{x+5}{3} > 1-2x$ or $-x-1 \leq 0$ and represent the solution graphically. (6 marks)

11. Solve $5^x + 5^{x+1} = 750$. (4 marks)

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JA Banks



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Table of Contents Past Maths Exam Papers Grade 1

1. Understanding the eBook Past Maths Exam Papers Grade 1
 - The Rise of Digital Reading Past Maths Exam Papers Grade 1
 - Advantages of eBooks Over Traditional Books
2. Identifying Past Maths Exam Papers Grade 1
 - Exploring Different Genres
 - Considering Fiction vs. Non-Fiction
 - Determining Your Reading Goals
3. Choosing the Right eBook Platform
 - Popular eBook Platforms
 - Features to Look for in an Past Maths Exam Papers Grade 1
 - User-Friendly Interface
4. Exploring eBook Recommendations from Past Maths Exam Papers Grade 1
 - Personalized Recommendations
 - Past Maths Exam Papers Grade 1 User Reviews and Ratings
 - Past Maths Exam Papers Grade 1 and Bestseller Lists

5. Accessing Past Maths Exam Papers Grade 1 Free and Paid eBooks
 - Past Maths Exam Papers Grade 1 Public Domain eBooks
 - Past Maths Exam Papers Grade 1 eBook Subscription Services
 - Past Maths Exam Papers Grade 1 Budget-Friendly Options
6. Navigating Past Maths Exam Papers Grade 1 eBook Formats
 - ePub, PDF, MOBI, and More
 - Past Maths Exam Papers Grade 1 Compatibility with Devices
 - Past Maths Exam Papers Grade 1 Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Past Maths Exam Papers Grade 1
 - Highlighting and Note-Taking Past Maths Exam Papers Grade 1
 - Interactive Elements Past Maths Exam Papers Grade 1
8. Staying Engaged with Past Maths Exam Papers Grade 1
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Past Maths Exam Papers Grade 1
9. Balancing eBooks and Physical Books Past Maths Exam Papers Grade 1
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Past Maths Exam Papers Grade 1
10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Past Maths Exam Papers Grade 1
 - Setting Reading Goals Past Maths Exam Papers Grade 1
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Past Maths Exam Papers Grade 1
 - Fact-Checking eBook Content of Past Maths Exam Papers Grade 1
 - Distinguishing Credible Sources
13. Promoting Lifelong Learning

- Utilizing eBooks for Skill Development
- Exploring Educational eBooks

14. Embracing eBook Trends

- Integration of Multimedia Elements
- Interactive and Gamified eBooks

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