

MATHEMATICS

(Three hours)

(Candidates are allowed additional 15 minutes for only reading the paper.
They must NOT start writing during this time.)

Section A - Answer Question 1 (compulsory) and five other questions.

Section B and Section C - Answer two questions from either Section B or Section C.

All working, including rough work, should be done on the same sheet as, and adjacent to,
the rest of the answer.

The intended marks for questions or parts of questions are given in brackets [].

Mathematical tables and graph papers are provided.

Slide rule may be used.

SECTION A

Question 1

[10×3]

- (i) If $(A - 2I)(A - 3I) = 0$, where $A = \begin{pmatrix} 4 & 2 \\ -1 & x \end{pmatrix}$ and $I = \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}$, find the value of x .
- (ii) Find the value(s) of k so that the line $2x + y + k = 0$ may touch the hyperbola $3x^2 - y^2 = 3$.
- (iii) Prove that: $\tan^{-1} \frac{1}{4} + \tan^{-1} \frac{2}{9} = \frac{1}{2} \sin^{-1} \frac{4}{5}$
- (iv) Using L'Hospital's Rule, evaluate:
$$\lim_{x \rightarrow 0} \left(\frac{e^x - e^{-x} - 2x}{x - \sin x} \right)$$
- (v) Evaluate: $\int \frac{1}{x + \sqrt{x}} dx$
- (vi) Evaluate: $\int_0^1 \log \left(\frac{1}{x} - 1 \right) dx$
- (vii) Two regression lines are represented by $4x + 10y = 9$ and $6x + 3y = 4$. Find the line of regression of y on x .
- (viii) If 1, w and w^2 are the cube roots of unity, evaluate $(1 - w^4 + w^8)(1 - w^8 + w^{16})$

This Paper consists of 5 printed pages and 1 blank page.

Maths Pmay June 2013 Marking Scheme

Yijin Wang



Maths Pmay June 2013 Marking Scheme:

The book delves into Maths Pmay June 2013 Marking Scheme. Maths Pmay June 2013 Marking Scheme is a crucial topic that must be grasped by everyone, from students and scholars to the general public. This book will furnish comprehensive and in-depth insights into Maths Pmay June 2013 Marking Scheme, encompassing both the fundamentals and more intricate discussions.

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 - Chapter 1: Introduction to Maths Pmay June 2013 Marking Scheme
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 - Chapter 4: Maths Pmay June 2013 Marking Scheme in Specific Contexts
 - Chapter 5: Conclusion
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Table of Contents Maths Pmay June 2013 Marking Scheme

1. Understanding the eBook Maths Pmay June 2013 Marking Scheme
 - The Rise of Digital Reading Maths Pmay June 2013 Marking Scheme
 - Advantages of eBooks Over Traditional Books
2. Identifying Maths Pmay June 2013 Marking Scheme
 - 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 Maths Pmay June 2013 Marking Scheme
 - User-Friendly Interface
4. Exploring eBook Recommendations from Maths Pmay June 2013 Marking Scheme
 - Personalized Recommendations
 - Maths Pmay June 2013 Marking Scheme User Reviews and Ratings
 - Maths Pmay June 2013 Marking Scheme and Bestseller Lists
5. Accessing Maths Pmay June 2013 Marking Scheme Free and Paid eBooks
 - Maths Pmay June 2013 Marking Scheme Public Domain eBooks
 - Maths Pmay June 2013 Marking Scheme eBook Subscription Services
 - Maths Pmay June 2013 Marking Scheme Budget-Friendly Options
6. Navigating Maths Pmay June 2013 Marking Scheme eBook Formats
 - ePub, PDF, MOBI, and More
 - Maths Pmay June 2013 Marking Scheme Compatibility with Devices
 - Maths Pmay June 2013 Marking Scheme Enhanced eBook Features
7. Enhancing Your Reading Experience
 - Adjustable Fonts and Text Sizes of Maths Pmay June 2013 Marking Scheme
 - Highlighting and Note-Taking Maths Pmay June 2013 Marking Scheme
 - Interactive Elements Maths Pmay June 2013 Marking Scheme

8. Staying Engaged with Maths Pmay June 2013 Marking Scheme
 - Joining Online Reading Communities
 - Participating in Virtual Book Clubs
 - Following Authors and Publishers Maths Pmay June 2013 Marking Scheme
9. Balancing eBooks and Physical Books Maths Pmay June 2013 Marking Scheme
 - Benefits of a Digital Library
 - Creating a Diverse Reading Collection Maths Pmay June 2013 Marking Scheme
10. Overcoming Reading Challenges
 - Dealing with Digital Eye Strain
 - Minimizing Distractions
 - Managing Screen Time
11. Cultivating a Reading Routine Maths Pmay June 2013 Marking Scheme
 - Setting Reading Goals Maths Pmay June 2013 Marking Scheme
 - Carving Out Dedicated Reading Time
12. Sourcing Reliable Information of Maths Pmay June 2013 Marking Scheme
 - Fact-Checking eBook Content of Maths Pmay June 2013 Marking Scheme
 - 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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