

Subject - Math AA(Standard Level)
Topic - Number and Algebra
Year - May 2021 - Nov 2022
Paper -1
Answers

Question 1

- (a) attempting to use the change of base rule

M1

$$\log_3(\cos 2x + 2) = \frac{\log_4(\cos 2x + 2)}{\log_4 9}$$

A1

$$= \frac{1}{2} \log_3(\cos 2x + 2)$$

A1

$$= \log_3 \sqrt{\cos 2x + 2}$$

AG

[3 marks]

- (b) $\log_3(2 \sin x) = \log_3 \sqrt{\cos 2x + 2}$

M1

$$2 \sin x = \sqrt{\cos 2x + 2}$$

A1

$$4 \sin^2 x = \cos 2x + 2 \quad (\text{or equivalent})$$

(*M1*)

$$\text{use of } \cos 2x = 1 - 2 \sin^2 x$$

$$6 \sin^2 x = 3$$

$$\sin x = \left(\pm \right) \frac{1}{\sqrt{2}}$$

A1

$$x = \frac{\pi}{4}$$

A1

Note: Award *A0* if solutions other than $x = \frac{\pi}{4}$ are included.

[5 marks]

Total [8 marks]

Math Sl Paper 1 2013 Answer Key

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Process Data in Educational and Psychological Measurement, 2nd Edition Hong Jiao, Qiwei He, Bernard Veldkamp, 2021-12-13 Publisher's note In this 2nd edition The following article has been added Jiao H He Q and Veldkamp BP 2021 Editorial Process Data in Educational and Psychological Measurement Front Psychol 12 793399 doi 10 3389 fpsyg 2021 793399 The following article has been added Reis Costa D Bolsinova M Tijnstra J and Andersson B 2021 Improving the Precision of Ability Estimates Using Time On Task Variables Insights From the PISA 2012 Computer Based Assessment of Mathematics Front Psychol 12 579128 doi 10 3389 fpsyg 2021 579128 The following article has been removed Minghui L Lei H Xiaomeng C and Potm ilc M 2018 Teacher Efficacy Work Engagement and Social Support Among Chinese Special Education School Teachers Front Psychol 9 648 doi 10 3389 fpsyg 2018 00648 The Math Pact, Middle School Sarah B. Bush, Karen S. Karp, Barbara J. Dougherty, 2020-09-19 A schoolwide solution for students mathematics success Do you sometimes start to teach a mathematics concept and feel like you're staring at a sea of bewildered faces What happens when you discover students previously learned a calculation trick or a mnemonic that has muddled their long term understanding When rules seem to change from year to year teacher to teacher or school to school mathematics can seem like a disconnected mystery for students Clear up the confusion with a Mathematics Whole School Agreement Expanded from the highly popular Rules that Expire series of NCTM articles this essential guide leads educators through the collaborative step by step process of establishing a coherent and consistent learner centered and equitable approach to mathematics instruction Through this work you will identify streamline and become passionate about using clear and consistent mathematical language notations representations rules and generalizations within and across classrooms and grades Importantly you'll learn to avoid rules that expire tricks that may seem to help students in one grade but hurt in the long run Features of this book include Abundant grade specific examples Effective working plans for sustainability Barrier busting tips to do and try it out Practical templates and checklists PLC prompts and discussion points When teachers unite across grades students hit the ground running every year Take the next step together as a team and help all your students build on existing understanding to find new success and most importantly love learning and doing mathematics **More Trouble with Maths** Steve Chinn, 2020-03-24 Now in an updated third edition this invaluable resource takes a practical and accessible approach to identifying and diagnosing many of the factors that contribute to mathematical learning difficulties and dyscalculia Using a combination of formative and summative approaches it provides a range of norm referenced standardised tests and diagnostic activities each designed to reveal common error patterns and misconceptions in order to form a basis for intervention Revised to reflect developments in the understanding of learning difficulties in mathematics the book gives a diagnostic overview of a range of challenges to mathematical learning including difficulties in grasping and retaining facts problems with mathematics vocabulary and maths anxiety Key features of this book include Photocopiable

tests and activities designed to be presented in a low stress way Guidance on the interpretation of data allowing diagnosis and assessment to become integrated into everyday teaching Sample reports showing the diagnostic tests in practice Drawing on tried and tested methods as well as the author s extensive experience and expertise this book is written in an engaging and user friendly style It is a vital resource for anyone who wants to accurately identify the depth and nature of mathematical learning difficulties and dyscalculia

Making Education Work for the Poor William Elliott,Melinda Lewis,2018-07-03 Making Education Work for the Poor identifies wealth inequality as the gravest threat to the American education system Today wealth rather than individuals effort and ability determines educational outcomes This book calls for universal Opportunity Investment Accounts to be the cornerstone of the wealth building agenda the nation needs to salvage the American Dream

Automation 2023: Key Challenges in Automation, Robotics and Measurement Techniques Roman Szewczyk,Cezary Zieliński,Małgorzata Kaliczyńska,Vytautas Bučinskas,2023-02-04 This volume presents the results of recent research which supports the postulated transformation It contains papers written by both scientists and engineers dealing with diverse aspects of measuring techniques robotics mechatronics systems control industrial automation numerical modelling and simulation as well as application of artificial intelligence techniques required by the transformation of the industry towards the Industry 4 0 We strongly believe that the solutions and guidelines presented in this volume will be useful for both researchers and engineers solving problems that have emerged during the recent crisis

Security with Intelligent Computing and Big-Data Services 2019 Lakhmi C. Jain,Sheng-Lung Peng,Shiuh-Jeng Wang,2020-04-27 This book aims to attract researchers and practitioners who are working in Information Technology and Computer Science This edited book is about basics and high level concepts regarding Blockchain Technology and Application Multimedia Security Information Processing Security of Network Cloud and IoT Cryptography and Cryptosystem Learning and Intelligent Computing Information Hiding It is becoming increasingly important to develop adaptive intelligent computing centric energy aware secure and privacy aware mechanisms in high performance computing and IoT applications The book serves as a useful guide for industry persons and also helps beginners to learn things from basic to advance in the area of better computing paradigm Our aim is intended to provide a platform for researchers engineers academicians as well as industrial professionals from all over the world to present their research results in security related areas We believe that this volume not only presents novel and interesting ideas but also will stimulate interesting discussions from the participants and inspire new ideas

Conference Proceedings of 2021 International Joint Conference on Energy, Electrical and Power Engineering Wenping Cao,Cungang Hu,Xiaoyan Huang,Xiangping Chen,Jun Tao,2022-10-12 This book will be a collection of the papers presented in the 2021 International Joint Conference on Energy Electrical and Power Engineering CoEEPE 21 covering new and renewable energy electrical and power engineering It is expected to report the latest technological developments in the fields developed by academic researchers and industrial practitioners with a focus on component design

optimization and control algorithms in electrical and power engineering systems The applications and dissemination of these technologies will benefit research society as new research directions are getting more and more inter disciplinary which require researchers from different research areas to come together and form ideas jointly It will also benefit the electrical engineering and power industry as we are now experiencing a new wave of industrial revolution that is electrification intelligentization and digitalisation of our transport manufacturing process and way of thinking Gesture-Speech Integration: Combining Gesture and Speech to Create Understanding Naomi Sweller,Kazuki Sekine,Autumn Hostetter,2021-09-14 **Scientific Influences on Early Childhood Education** Dominic F. Gullo,M. Elizabeth Graue,2020-04-23 Scientific Influences on Early Childhood Education offers a new framework for examining the diverse scientific perspectives that shape early childhood education As the field takes on an increasing role in addressing children s educational developmental and environmental needs it is critical to more fully understand and appreciate the diverse scientific roots of contemporary early childhood education This edited collection brings together leading researchers to explain and unpack perspectives that are not often associated with early childhood education yet have made significant contributions to its development and evolution Essential reading for anyone working with young children this critical and insightful text illuminates the connections between our social values science and research in the field *Backpacker* ,2001-03 Backpacker brings the outdoors straight to the reader s doorstep inspiring and enabling them to go more places and enjoy nature more often The authority on active adventure Backpacker is the world s first GPS enabled magazine and the only magazine whose editors personally test the hiking trails camping gear and survival tips they publish Backpacker s Editors Choice Awards an industry honor recognizing design feature and product innovation has become the gold standard against which all other outdoor industry awards are measured **Science Citation Index** ,1994 Vols for 1964 have guides and journal lists American Export Register ,1980

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