

**GRADE 9 MATHEMATICS
 NOVEMBER EXAMINATION PAPER 2**

QUESTION 1

1.1 Draw a rhombus and indicate all properties in mathematical language. (5)

1.2 Choose the correct answer and write only the LETTER on your answer sheet.

1.2.1 Which of the following statements is NOT true about a kite?

- A. The longer diagonal bisects the shorter diagonal at 90°
- B. The shorter diagonal bisects the longer diagonal at 90°
- C. Diagonals bisect each other
- D. Diagonals are equal

1.2.2 An isosceles triangle has a top angle of 70° . The individual value of the equal angles will be:

- A. 60°
- B. 55°
- C. 70°
- D. 65°

1.2.3 A translation is:

- A. Any horizontal or vertical change in position of a shape.
- B. A mirror image of the original position.
- C. An enlargement of the original shape.
- D. A reduction of the original shape.

1.2.4 What is the length of AC in the figure below:



- A. 16cm
- B. 15cm
- C. 13cm
- D. 5cm

1.2.5 A point on a shape has coordinates $(-2; 3)$, what would the new coordinates be after a $y' = -y$ reflection

- A. $(3; -2)$
- B. $(2; 3)$
- C. $(-3; 2)$
- D. $(3; 2)$

(7)

(10)

QUESTION 2: GEOMETRY

Use the following structure to answer this question:

Statement:	Reason:
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2.1 In the diagram below $\angle ABE = 65^\circ$ and $\angle DCF = 32^\circ$



2.1.1 Calculate the size of $\angle BAC$. Give reasons and show your calculations.

(3)

Ana Grade 9 Mathematics November 2013 Papers

**Lorena Bociu, Jean-Antoine
Désidéri, Abderrahmane Habbal**

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System Modeling and Optimization Lorena Bociu, Jean-Antoine Désidéri, Abderrahmane Habbal, 2017-04-10 This book is a collection of thoroughly refereed papers presented at the 27th IFIP TC 7 Conference on System Modeling and Optimization held in Sophia Antipolis France in June July 2015 The 48 revised papers were carefully reviewed and selected from numerous submissions They cover the latest progress in their respective areas and encompass broad aspects of system modeling and optimization such as modeling and analysis of systems governed by Partial Differential Equations PDEs or Ordinary Differential Equations ODEs control of PDEs ODEs nonlinear optimization stochastic optimization multi objective optimization combinatorial optimization industrial applications and numericsof PDEs **DMRC Exam for Jr. Engineer (Electrical) Guide + Workbook (10 Practice Sets) Paper I & II 2nd edition** Disha Experts, 2017-09-01 The THOROUGHLY REVISED UPDATED 2nd edition of the book DMRC Exam Paper 1 2 for Jr Engineer Electrical Guide Workbook 10 Practice Sets 2nd edition has been specially designed to help students in the latest DMRC exam being conducted by DMRC The book contains Quick Concept Review of the General Ability Test in 2 parts Aptitude and Electrical Engineering The Quick Concept Review is followed by a short exercise with solutions The book also provides 2 Solved past papers of 2012 2013 to guide you about the pattern and the level of questions asked The book provides 10 Practice Sets Paper 1 and 2 as per the LATEST pattern of DMRC Electrical Engineering exam The solutions of the 10 Practice Sets are provided immediately at the end of each Set The questions have been carefully selected so as to give you a real feel of the exam Each Practice Set is classified into 2 papers Paper I is an Objective Test containing General Ability section and Electrical Engineering section The General Ability section has 60 questions on General Awareness Logical Ability and Quantitative Aptitude The Electrical Engineering section has 60 questions on the knowledge of the Electrical Engineering discipline trade The Paper II consists of an objective test of English language of 60 questions Two fully solved past papers of 2012 2013 have been provided It is our confidence that if you attempt each of the tests with sincerity your score must improve at least by 10 15% The book also provides Response Sheet for each objective test Post each test you must do a Post Test Analysis with the help of the Test Analysis Feedback Sheet which has been provided for each Set **Schooled Anne Lutz Fernandez, Catherine Lutz, 2015-07-02** Nothing provided **The Game Believes in You** Greg Toppo, 2025-06-25 What if schools from the wealthiest suburban nursery school to the grittiest urban high school thrummed with the sounds of deep immersion More and more people believe that can happen with the aid of video games Greg Toppo's *The Game Believes in You* presents the story of a small group of visionaries who for the past 40 years have been pushing to get game controllers into the hands of learners Among the game revolutionaries you'll meet in this book A game designer at the University of Southern California leading a team to design a video game version of Thoreau's *Walden Pond* A young neuroscientist and game designer whose research on *Math Without Words* is revolutionizing how the subject is taught especially to students

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Teaching and Learning Secondary School Mathematics Ann Kajander, Jennifer Holm, Egan J

Chernoff, 2018-10-24 This volume brings together recent research and commentary in secondary school mathematics from a breadth of contemporary Canadian and International researchers and educators It is both representative of mathematics education generally as well as unique to the particular geography and culture of Canada The chapters address topics of broad applicability such as technology in learning mathematics recent interest in social justice contexts in the learning of mathematics as well as Indigenous education The voices of classroom practitioners the group ultimately responsible for implementing this new vision of mathematics teaching and learning are not forgotten Each section includes a chapter written by a classroom teacher making this volume unique in its approach We have much to learn from one another and this volume takes the stance that the development of a united vision supported by both research and professional dialog provides the first step

Numerical Development - From cognitive functions to neural underpinnings Korbinian Moeller, Elise Klein, Klaus F

Willmes - von Hinckeldey, Karin Kucian, 2015-02-24 Living at the beginning of the 21st century requires being numerate because numerical abilities are not only essential for life prospects of individuals but also for economic interests of post industrial knowledge societies Thus numerical development is at the core of both individual as well as societal interests There is the notion that we are already born with a very basic ability to deal with small numerosities Yet this often called number sense seems to be very restricted approximate and driven by perceptual constraints During our numerical development in formal e.g. school but also informal contexts e.g. family street we acquire culturally developed abstract symbol systems to represent exact numerosities in particular number words and Arabic digits refining our numerical capabilities In recent years numerical development has gained increasing research interest documented in a growing number of behavioural neuro scientific educational cross cultural and neuropsychological studies addressing this issue Additionally our understanding of how numerical competencies develop has also benefitted considerably from the advent of different neuro imaging techniques allowing for an evaluation of developmental changes in the human brain In sum we are now starting to put together a more and more coherent picture of how numerical competencies develop and how this development is associated with neural changes as well In the end this knowledge might also lead to a better understanding of the reasons for atypical numerical development which often has grievous consequences for those who suffer from developmental dyscalculia or mathematics learning disabilities Therefore this Research Topic deals with all aspects of numerical development findings

from behavioural performance to underlying neural substrates from cross sectional to longitudinal evaluations from healthy to clinical populations To this end we included empirical contributions using different experimental methodologies but also theoretical contributions review articles or opinion papers

Elliptic-Hyperbolic Partial Differential Equations Thomas H. Otway, 2015-07-08 This text is a concise introduction to the partial differential equations which change from elliptic to hyperbolic type across a smooth hypersurface of their domain These are becoming increasingly important in diverse sub fields of both applied mathematics and engineering for example The heating of fusion plasmas by electromagnetic waves The behaviour of light near a caustic Extremal surfaces in the space of special relativity The formation of rapids transonic and multiphase fluid flow The dynamics of certain models for elastic structures The shape of industrial surfaces such as windshields and airfoils Pathologies of traffic flow Harmonic fields in extended projective space They also arise in models for the early universe for cosmic acceleration and for possible violation of causality in the interiors of certain compact stars Within the past 25 years they have become central to the isometric embedding of Riemannian manifolds and the prescription of Gauss curvature for surfaces topics in pure mathematics which themselves have important applications Elliptic Hyperbolic Partial Differential Equations is derived from a mini course given at the ICMS Workshop on Differential Geometry and Continuum Mechanics held in Edinburgh Scotland in June 2013 The focus on geometry in that meeting is reflected in these notes along with the focus on quasilinear equations In the spirit of the ICMS workshop this course is addressed both to applied mathematicians and to mathematically oriented engineers The emphasis is on very recent applications and methods the majority of which have not previously appeared in book form

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Doable Differentiation Jane A. G. Kise, 2021-05-14 Differentiating for students learning preferences can often seem too complex and complicated for too little gain Learn a better way forward with the guidance of Doable Differentiation Author Jane A G Kise provides a series of straightforward high reward strategies that K 12 educators like you successfully use in their daily practice to support engage and challenge students with diverse learning styles Understand the benefits of differentiation and how to implement differentiated instruction simply and effectively Learn students preferred cognitive processing styles to better tailor differentiated lesson plans for all learners needs Discover 12 categories of research based differentiation strategies to implement immediately Provide students with a variety of accessible options for processing information engaging in higher level thinking and demonstrating learning Engage learners and develop their proficiency and self efficacy Contents Introduction What Makes Differentiation Doable Part 1 The Foundation Chapter 1 Cognitive Processes and Effective Differentiation Chapter 2 Clear Learning Goals and Expectations Part 2 The Strategies Chapter 3 Choice Chapter 4 Wait Time Chapter 5 Unambiguous Instruction Chapter 6 Pressure Prompted Accommodations Chapter 7 Student Centered Discussions Chapter 8 Curiosity Creators Chapter 9 Open Questions Chapter 10 Concept Maps Chapter 11 Big Notes Chapter 12 Moveable Organizers Chapter 13 Planned Movement Chapter 14

Talking to Write Part 3 Lesson Planning Chapter 15 Two Step Differentiation Epilogue References and Resources Index

Mathematics and Transition to School Bob Perry, Amy MacDonald, Ann Gervasoni, 2015-01-09 This edited book brings together for the first time an international collection of work focused on two important aspects of any young child's life learning mathematics and starting primary or elementary school The chapters take a variety of perspectives and integrate these two components in sometimes explicit and sometimes more subtle ways The key issues and themes explored in this book are the mathematical and other strengths that all participants in the transition to school bring to this period of a child's life the opportunities provided by transition to school for young children's mathematics learning the importance of partnerships among adults and among adults and children for effective school transitions and mathematics learning and teaching the critical impact of expectations on their mathematics learning as children start school the importance of providing children with meaningful challenging and relevant mathematical experiences throughout transition to school the entitlement of children and educators to experience assessment and instructional pedagogies that match the strengths of the learners and the teachers the importance for the aspirations of children families communities educators and educational organisations to be recognised as legitimate and key determinants of actions experiences and successes in both transition to school and mathematics learning and the belief that young children are powerful mathematics learners who can demonstrate this power as they start school In each chapter authors reflect on their work in the area of mathematics and transition to school place that work within the overall context of research in these fields predict the trajectory of this work in the future and consider the implications of the work both theoretically and practically

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