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Solutions of Equations (IB Math)

AcesMath! Confused about the various concepts on Solutions of Equations taught in school? This book on Solutions of Equations seeks to offer a condensed version of what you need to know for your journey in IB Mathematics (HL), alongside with detailed worked examples and extra practice questions. Tips on certain question types are provided to aid in smoothing the working process when dealing with them.

Differential Equations with Linear Algebra

Oxford University Press Linearity plays a critical role in the study of elementary differential equations; linear differential equations, especially systems thereof, demonstrate a fundamental application of linear algebra. In *Differential Equations with Linear Algebra*, we explore this interplay between linear algebra and differential equations and examine introductory and important ideas in each, usually through the lens of important problems that involve differential equations. Written at a sophomore level, the text is accessible to students who have completed multivariable calculus. With a systems-first approach, the book is appropriate for courses for majors in mathematics, science, and engineering that study systems of differential equations. Because of its emphasis on linearity, the text opens with a full chapter devoted to essential ideas in linear algebra. Motivated by future problems in systems of differential equations, the chapter on linear algebra introduces such key ideas as systems of algebraic equations, linear combinations, the eigenvalue problem, and bases and dimension of vector spaces. This chapter enables students to quickly learn enough linear algebra to appreciate the structure of solutions to linear differential equations and systems thereof in subsequent study and to apply these ideas regularly. The book offers an example-driven approach, beginning each chapter with one or two motivating problems that are applied in nature. The following chapter develops the mathematics necessary to solve these problems and explores related topics further. Even in more theoretical developments, we use an example-first style to build intuition and understanding before stating or proving general results. Over 100 figures provide visual demonstration of key ideas; the use of the computer algebra system Maple and Microsoft Excel are presented in detail throughout to provide further perspective and support students' use of technology in solving problems. Each chapter closes with several substantial projects for further study, many of which are based in applications. Errata sheet available at: www.oup.com/us/companion.websites/9780195385861/pdf/errata.pdf

Approximate Solution of Operator Equations

Springer Science & Business Media One of the most important chapters in modern functional analysis is the theory of approximate methods for solution of various mathematical problems. Besides providing considerably simplified approaches to numerical methods, the ideas of functional analysis have also given rise to essentially new computation schemes in problems of linear algebra, differential and integral equations, nonlinear analysis, and so on. The general theory of approximate methods includes many known fundamental results. We refer to the classical work of Kantorovich; the investigations of projection methods by Bogolyubov, Krylov, Keldysh and Petrov, much furthered by Mikhlin and Pol'skii;

Tikhonov's methods for approximate solution of ill-posed problems; the general theory of difference schemes; and so on. During the past decade, the Voronezh seminar on functional analysis has systematically discussed various questions related to numerical methods; several advanced courses have been held at Voronezh University on the application of functional analysis to numerical mathematics. Some of this research is summarized in the present monograph. The authors' aim has not been to give an exhaustive account, even of the principal known results. The book consists of five chapters.

Lectures, Problems and Solutions for Ordinary Differential Equations

World Scientific This unique book on ordinary differential equations addresses practical issues of composing and solving differential equations by demonstrating the detailed solutions of more than 1,000 examples. The initial draft was used to teach more than 10,000 advanced undergraduate students in engineering, physics, economics, as well as applied mathematics. It is a good source for students to learn problem-solving skills and for educators to find problems for homework assignments and tests. The 2nd edition, with at least 100 more examples and five added subsections, has been restructured to flow more pedagogically.

Lectures, Problems And Solutions For Ordinary Differential Equations

World Scientific This unique book on ordinary differential equations addresses practical issues of composing and solving such equations by large number of examples and homework problems with solutions. These problems originate in engineering, finance, as well as science at appropriate levels that readers with the basic knowledge of calculus, physics or economics are assumed able to follow.

Modelling with Differential and Difference Equations

Cambridge University Press Any student wishing to solve problems via mathematical modelling will find that this book provides an excellent introduction to the subject.

New and Easy Method of Solution of the Cubic and Biquadratic Equations

Embracing Several New Formulas, Greatly Simplifying this Department of Mathematical Science

New and Easy Method of Solution of the Cubic and Biquadratic Equations, Embracing Several New Formulas, Greatly Simplifying This Department of Mathematical Science by Orson Pratt, first published in 1866, is a rare manuscript, the original residing in one of the great libraries of the world. This book is a reproduction of that original, which has been scanned and cleaned by state-of-the-art publishing tools for better readability and enhanced appreciation. Restoration Editors' mission is to bring long out of print manuscripts back to life. Some smudges, annotations or unclear text may still exist, due to permanent damage to the original work. We believe the literary significance of the text justifies offering this reproduction, allowing a new generation to appreciate it.

New and easy method of solution of the Cubic and Biquadratic Equations, embracing several new formulas, ... designed as a sequel to the Elements of Algebra, etc

Spectral Problems Associated with Corner Singularities of Solutions to Elliptic Equations

American Mathematical Soc. This book focuses on the analysis of eigenvalues and eigenfunctions that describe singularities of solutions to elliptic boundary value problems in domains with corners and edges. The authors treat both classical problems of mathematical physics and general elliptic boundary value problems. The volume is divided into two parts: the first is devoted to the power-logarithmic singularities of solutions to classical boundary value problems of mathematical physics. The second deals with similar singularities for higher order elliptic equations and systems. Chapter 1 collects basic facts concerning operator pencils acting in a pair of Hilbert spaces. Related properties of ordinary differential equations with constant operator coefficients are discussed and connections with the theory of general elliptic boundary value problems in domains with conic vertices are outlined. New results are presented. Chapter 2 treats the Laplace operator as a starting point and a model for the subsequent study of angular and conic singularities of solutions. Chapter 3 considers the Dirichlet boundary condition beginning with the plane case and turning to the space problems. Chapter 4 investigates some mixed boundary conditions. The Stokes system is discussed in Chapters 5 and 6, and Chapter 7 concludes with the Dirichlet problem for the polyharmonic operator. Chapter 8 studies the Dirichlet problem for general elliptic differential equations of order $2m$ in an angle. In Chapter 9, an asymptotic formula for the distribution of eigenvalues of operator pencils corresponding to general elliptic boundary value problems in an angle is obtained. Chapters 10 and 11 discuss the Dirichlet problem for elliptic systems of differential equations of order 2 in an n -dimensional cone. Chapter 12 studies the Neumann problem for general elliptic systems, in particular with eigenvalues of the corresponding operator pencil in the strip $\{\operatorname{Re} \lambda - m + 1/2n \leq \operatorname{Im} \lambda \leq 1/2\}$. It is shown that only integer numbers contained in this strip are eigenvalues. Applications are placed within chapter introductions and as special sections at the end of chapters. Prerequisites include standard PDE and functional analysis courses.

Inconsistency Solution of Maxwell's Equations

Lulu.com

Mathematics: quadratic equations.

How solve a quadratic equation.

Mariù Garo "Quadratic Equations" is the first book of a series dedicated to mathematics. The book is also available in Italian. Using a fast, simple and complete method, you'll learn how to solve quadratic equations and what are the basics of this topic. In particular, here we explain the numerical, fractional and parametric equations, the Descartes' rule and the relation between the coefficients and solutions of a quadratic equation. If you need information, you can visit the website: www.mathsly.it, and by using the contact form, you can communicate directly with the author.

Symmetry Analysis and Exact Solutions of Equations of Nonlinear Mathematical Physics

Springer Science & Business Media by spin or (spin $s = 1/2$) field equations is emphasized because their solutions can be used for constructing solutions of other field equations insofar as fields with any spin may be constructed from spin $s = 1/2$ fields. A brief account of the main ideas of the book is presented in the Introduction. The book is largely based on the authors' works [55-109, 176-189, 13-16, 7*-14*, 23*, 24*] carried out in the Institute of Mathematics, Academy of Sciences of the Ukraine. References to other sources is not intended to imply completeness. As a rule, only those works used directly are cited. The authors wish to express their gratitude to Academician Yu.A. Mitropoi sky, and to Academician of

Academy of Sciences of the Ukraine O.S. Parasyuk, for basic support and stimulation over the course of many years; to our coworkers in the Department of Applied Studies, LA. Egorchenko, R.Z. Zhdanov, A.G. Nikitin, LV. Revenko, V.L. Lagno, and I.M. Tsifra for assistance with the manuscript.

Pell's Equation

Springer Science & Business Media Pell's equation is part of a central area of algebraic number theory that treats quadratic forms and the structure of the rings of integers in algebraic number fields. It is an ideal topic to lead college students, as well as some talented and motivated high school students, to a better appreciation of the power of mathematical technique. Even at the specific level of quadratic diophantine equations, there are unsolved problems, and the higher degree analogues of Pell's equation, particularly beyond the third, do not appear to have been well studied. In this focused exercise book, the topic is motivated and developed through sections of exercises which will allow the readers to recreate known theory and provide a focus for their algebraic practice. There are several explorations that encourage the reader to embark on their own research. A high school background in mathematics is all that is needed to get into this book, and teachers and others interested in mathematics who do not have (or have forgotten) a background in advanced mathematics may find that it is a suitable vehicle for keeping up an independent interest in the subject.

My Revision Notes: AQA Year 1 (AS) Maths (Pure)

Hachette UK Exam board: AQA Level: A-level Subject: Mathematics First teaching: September 2017 First exams: Summer 2019 Target success in AQA A Level Mathematics with this proven formula for effective, structured revision; key content coverage and plentiful worked examples are combined with exam-style and multiple choice questions to create a revision guide that students can rely on to review, strengthen and test their knowledge. - Help develop the key skills needed for success with skills-focused questions around problem-solving, proof, modelling and the use of ICT (spreadsheets, graphing software and graphing calculators). - Strategically target revision with diagnostic questions to establish which areas need focus. - Get assessment-ready with exam-style questions and advice on common examination pitfalls. - Embed knowledge and identify weaknesses with hundreds of multiple choice 'Test Yourself' questions, all carefully written to elicit misconceptions; full worked solutions online offer detailed, instructive explanations for all choices (whether they are correct or incorrect) - Consolidate revision with summaries for each topic that focus on what to concentrate on in the build-up to exams, with special focus on common pitfalls such as how to show correct workings. - Access answers at the back of the book, with detailed step-by-step worked solutions for ALL questions available for free online.

An introduction to algebra, and to the solution of numerical equations

Lecture Notes on Mathematical Olympiad Courses

For Junior Section

World Scientific Olympiad mathematics is not a collection of techniques of solving mathematical problems but a system for advancing mathematical education. This book is based on the lecture notes of the mathematical Olympiad training courses conducted by the author in Singapore. Its scope and depth not only covers and exceeds the usual syllabus, but introduces a variety of concepts and methods in modern mathematics. In each lecture, the concepts, theories and methods are taken as the core. The examples are served to explain and enrich their intuition and to indicate their applications. Besides, appropriate number of test questions is available for reader's practice and testing purpose. Their detailed solutions are also conveniently provided. The examples are not very complicated so that readers can easily understand. There are many real competition questions included which students can use to verify their abilities. These test questions are from many countries, e.g. China, Russia, USA, Singapore, etc. In particular, the reader can find many questions from China, if he is interested in understanding mathematical Olympiad in China. This book serves as a useful textbook of mathematical Olympiad courses, or as a reference book for related teachers and researchers. Errata(s). Errata. Sample Chapter(s). Lecture 16: Quadratic Surd Expressions and Their Operations (183k). Request Inspection Copy. Contents.: Volume 2: Congruence of Integers; Decimal Representation of Integers; Pigeonhole Principle; Linear Inequality and System of Linear Inequalities; Inequalities with Absolute Values;

Geometric Inequalities; Solutions to Testing Questions; and other chapters. Readership: Mathematics students, school teachers, college lecturers, university professors; mathematics enthusiasts.

My Revision Notes: OCR (A) A Level Mathematics Year 1/AS (Pure)

Hachette UK **Exam board: OCR Level: A-level Subject: Mathematics First teaching: September 2017 First exams: Summer 2018 Target success in OCR (A) A Level Mathematics with this proven formula for effective, structured revision; key content coverage and plentiful worked examples are combined with exam-style and multiple choice questions to create a revision guide that students can rely on to review, strengthen and test their knowledge. - Help develop the key skills needed for success with skills-focused questions around problem-solving, proof, modelling and the use of ICT (spreadsheets, graphing software and graphing calculators). - Strategically target revision with diagnostic questions to establish which areas need focus. - Get assessment-ready with exam-style questions and advice on common examination pitfalls. - Embed knowledge and identify weaknesses with hundreds of multiple choice 'Test Yourself' questions, all carefully written to elicit misconceptions; full worked solutions online offer detailed, instructive explanations for all choices (whether they are correct or incorrect) - Consolidate revision with summaries for each topic that focus on what to concentrate on in the build-up to exams, with special focus on common pitfalls such as how to show correct workings. -Access answers at the back of the book, with detailed step-by-step worked solutions for ALL questions available for free online.**

Student Solutions Manual for Zill/Wright's Differential Equations with Boundary-Value Problems, 8th

Cengage Learning **Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.**

Student Solutions Manual, A Modern Introduction to Differential Equations

Academic Press **Student Solutions Manual, A Modern Introduction to Differential Equations**

My Revision Notes: OCR B (MEI) A Level Mathematics Year 1/AS (Pure)

Hachette UK **Target success in OCR B (MEI) A Level Mathematics with this proven formula for effective, structured revision; key content coverage and plentiful worked examples are combined with exam-style and multiple choice questions to create a revision guide that students can rely on to review, strengthen and test their knowledge. - Help develop the key skills needed for success with skills-focused questions around problem-solving, proof, modelling and the use of ICT (spreadsheets, graphing software and graphing calculators). - Strategically target revision with diagnostic questions to establish which areas need focus. - Get assessment-ready with exam-style questions and advice on common examination pitfalls. - Embed knowledge and identify weaknesses with hundreds of multiple choice 'Test Yourself' questions, all carefully written to elicit misconceptions; full worked solutions online offer detailed, instructive explanations for all choices (whether they are correct or incorrect) - Consolidate revision with summaries for each topic that focus on what to concentrate on in the build-up to exams, with special focus on common pitfalls such as how to show correct workings. -Access answers at the back of the book, with detailed step-by-step worked solutions for ALL questions available for free online.**

Solutions Manual to accompany Ordinary Differential Equations

John Wiley & Sons **Features a balance between theory, proofs, and examples and provides applications across diverse fields of study Ordinary Differential Equations presents a thorough discussion of first-order differential equations and progresses to equations of higher order.**

On the theory and solution of algebraical equations

Solutions to Differential Equations

Laxmi Publications

Ordinary Differential Equations

Ordinary Differential Equations

An Elementary Textbook for Students of Mathematics, Engineering, and the Sciences

Courier Corporation Skillfully organized introductory text examines origin of differential equations, then defines basic terms and outlines the general solution of a differential equation. Subsequent sections deal with integrating factors; dilution and accretion problems; linearization of first order systems; Laplace Transforms; Newton's Interpolation Formulas, more.

A Treatise on the Theory and Solution of Algebraical Equations

Mathematics class 10 Based on NCERT Guidelines

SBPD Publications **1. Real Number : Euclid's division lemma, Fundamental Theorem of Arithmetic-statements after reviewing work done earlier and after illustrating and motivating through examples, Proofs of irrationality of Decimal representation of rational numbers in terms of terminating/non-terminating recurring decimals. Unit II : Algebra 1. Polynomials : Zeros of a polynomial. Relationship between zeros and coefficients of quadratic polynomials. Statement and simple problems on division algorithm for polynomials with real coefficients. 2. Pair of Linear Equations in Two Variables: Pair of linear equations in two variables and graphical method of their solution, consistency/inconsistency. Algebraic conditions for number of solutions. Solution of a pair of linear equations in two variables algebraically-by substitution, by elimination and by cross multiplication method. Simple situational problems. Simple problems on equation reducible to linear equations. 3. Quadratic Equations : Standard form of a quadratic equation $ax^2 + bx + c = 0$, ($a \neq 0$). Solutions of quadratic equations (only real roots) by factorization, by completing the square and by using quadratic formula. Relationship between discriminant and nature of roots. Situational problems based on quadratic equations related to day to day activities to be incorporated. 4. Arithmetic Progressions: Motivation for studying Arithmetic Progression Derivation of the n th term and sum of the first n terms of A.P. their application in solving daily life problems. Unit III: Coordinate Geometry 1. Lines (In two-dimensions) : Review : Concepts of coordinate geometry, graphs of linear equations. Distance formula. Section formula (internal division). Area of a triangle. Unit IV: Geometry 1. Triangles: Definition, examples, counter examples of similar triangles 1. (Prove) If a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points, the other two sides are divided in the same ratio. 2. (Motivate) If a line divides two sides of a triangle in the same ratio, the line is parallel to the third side. 3. (Motivate) If in two triangles, the corresponding angles are equal, their corresponding sides proportional and the triangles are similar. 4. (Motivate) If the corresponding sides of two triangles are proportional, their corresponding angles are equal and two triangles are similar. 5. (Motivate) If one angle of a triangle is equal to one angle of another triangle and the sides including these angles are proportional, the two triangles are similar. 6. (Motivate) If a perpendicular is drawn from the vertex of the right angle of a right triangle to the hypotenuse, the triangles on each side of the perpendicular are similar to the whole triangle and to each other. 7. (Prove) The ratio of the areas of two similar triangles is equal to the ratio of the squares of their corresponding sides. 8. (Prove) In a right triangle, the square on the hypotenuse is equal to the sum of the squares on the other two sides. 9. (Prove) In a triangle, if the square on one side is equal to sum of the squares on the other two sides, the angles opposite to the first side is a right angle. 2. Circles Tangent to a circle at, point of contact : 1. (Prove) The tangent at**

any point of a circle is perpendicular to the radius through the point of contact. 2. (Prove) The lengths of tangents drawn from an external point to a circle are equal. 3. Constructions : 1. Division of a line segment in a given ratio (internally) 2. Tangents to a circle from a point outside it. 3. Construction of a triangle similar to a given triangle. Unit V : Trigonometry 1. Introduction of Trigonometry : Trigonometric ratios of an acute angle of a right-angled triangle. Proof of their existence (well defined) ; motivate the ratios whichever are defined at 0 and 90. Values (with proofs) of the trigonometric ratios of 30° , 45° and 60° . Relationship between the ratios. 2. Trigonometric Identities : Proof and applications of the identity $\sin^2 A + \cos^2 A = 1$. Only simple identities to be given. Trigonometric ratios of complementary angles. 3. Heights and Distances : Angle of elevation, Angle of Depression. Simple problems on heights and distances. Problems should not involve more than two right triangles. Angles of elevation/depression should be only 30° , 45° , 60° . Unit VI : Mensuration 1. Areas Related to Circles : Motivate the area of a circle ; area of sectors and segments of a circle. Problems based on area and perimeter/circumference of the above said plane figures. (In calculating area of segment of a circle, problems should be restricted to central angle of 60° , 90° and 120° only. Plane figures involving triangles, simple quadrilaterals and circle should be taken.) 2. Surface Areas and Volumes : 1. Surface areas and volumes of combination of any two of the following : cubes, cuboids, spheres, hemispheres and right circular cylinders/cones. Frustum of a cone. 2. Problems involving converting one type of metallic solid into another and other mixed problems. (Problems with combination of not more than two different solids be taken.) Unit VII : Statistics and Probability 1. Statistics : Mean, median and mode of grouped data (bimodal situation to be avoided) cumulative frequency graph 2. Probability : Classical definition of probability. Simple problems on single events (not

Ordinary Differential Equations and Their Solutions

Courier Corporation This treatment presents most of the methods for solving ordinary differential equations and systematic arrangements of more than 2,000 equations and their solutions. The material is organized so that standard equations can be easily found. Plus, the substantial number and variety of equations promises an exact equation or a sufficiently similar one. 1960 edition.

Wandering Solutions of Delay Equations with Sine-Like Feedback

American Mathematical Soc. This title explores wandering solutions of delay equations with sine-like feedback. Topics include: symbolic dynamics for maps; composition of "local" and "global" maps; linking equations and maps; and explicit examples.

Calculus Multivariable

Cengage Learning The Larson Calculus program has a long history of innovation in the calculus market. It has been widely praised by a generation of students and professors for its solid and effective pedagogy that addresses the needs of a broad range of teaching and learning styles and environments. Each title is just one component in a comprehensive calculus course program that carefully integrates and coordinates print, media, and technology products for successful teaching and learning. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Numerical Solution of Algebraic Riccati Equations

SIAM This treatment of the basic theory of algebraic Riccati equations describes the classical as well as the more advanced algorithms for their solution in a manner that is accessible to both practitioners and scholars. It is the first book in which nonsymmetric algebraic Riccati equations are treated in a clear and systematic way. Some proofs of theoretical results have been simplified and a unified notation has been adopted. Readers will find a unified discussion of doubling algorithms, which are effective in solving algebraic Riccati equations as well as a detailed description of all classical and advanced algorithms for solving algebraic Riccati equations and their MATLAB codes. This will help the reader gain an understanding of the computational issues and provide ready-to-use implementation of the different solution techniques.

Periodic Solutions of Perturbed Second-Order Autonomous Equations

American Mathematical Soc.

Student Solutions Manual for Zill's Differential Equations with Boundary-Value Problems

Cengage Learning Go beyond the answers -- see what it takes to get there and improve your grade! This manual provides worked-out, step-by-step solutions to select odd-numbered problems in the text, giving you the information you need to truly understand how these problems are solved. Each section begins with a list of key terms and concepts. The solutions sections also include hints and examples to guide you to greater understanding. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Asymptotic Solutions of Strongly Nonlinear Systems of Differential Equations

Springer Science & Business Media The book is dedicated to the construction of particular solutions of systems of ordinary differential equations in the form of series that are analogous to those used in Lyapunov's first method. A prominent place is given to asymptotic solutions that tend to an equilibrium position, especially in the strongly nonlinear case, where the existence of such solutions can't be inferred on the basis of the first approximation alone. The book is illustrated with a large number of concrete examples of systems in which the presence of a particular solution of a certain class is related to special properties of the system's dynamic behavior. It is a book for students and specialists who work with dynamical systems in the fields of mechanics, mathematics, and theoretical physics.

Theory and Solution of Algebraical Equations of the Higher Orders

A SOLUTION FOR ORDINARY DIFFERENTIAL EQUATION: SOLVING TECHNIQUES AND APPLICATIONS

Horizon Books (A Division of Ignited Minds Edutech P Ltd) The present book entitled " A Solution for Ordinary Differential Equations- Solving Techniques and Applications" has been written so as to cover the syllabi of mathematics of various semesters of all the branches of engineering and for under graduate and post graduate students of most of the universities in our country.

Quadratic Equations and Curves

Benjamin-Cummings Publishing Company

On Some Neutrosophic Algebraic Equations

Infinite Study This paper is devoted to studying linear equations, and quadratic equations over a neutrosophic field $\mathbb{F}(\mathbb{I})$ and refined neutrosophic field $\mathbb{F}(\mathbb{I}_1, \mathbb{I}_2)$. This work introduces a full description of the solution's algorithm in $\mathbb{F}(\mathbb{I})$ and $\mathbb{F}(\mathbb{I}_1, \mathbb{I}_2)$, and discusses the solution's algorithm for a linear system of neutrosophic equations over $\mathbb{F}(\mathbb{I})$ and $\mathbb{F}(\mathbb{I}_1, \mathbb{I}_2)$ for the first

time.

Proceedings of the 2000 ASME Design Engineering Technical Conferences and Computers and Information in Engineering Conference: 26th Biennial Mechanisms and Robotics Conference

Beyond the Quadratic Formula

MAA The quadratic formula for the solution of quadratic equations was discovered independently by scholars in many ancient cultures and is familiar to everyone. Less well known are formulas for solutions of cubic and quartic equations whose discovery was the high point of 16th century mathematics. Their study forms the heart of this book, as part of the broader theme that a polynomial's coefficients can be used to obtain detailed information on its roots. The book is designed for self-study, with many results presented as exercises and some supplemented by outlines for solution. The intended audience includes in-service and prospective secondary mathematics teachers, high school students eager to go beyond the standard curriculum, undergraduates who desire an in-depth look at a topic they may have unwittingly skipped over, and the mathematically curious who wish to do some work to unlock the mysteries of this beautiful subject.