Imaths

" IMaths is an investigative-based numeracy program thath comprehensively addresses both the content and proficency strands of the Australian curriculum". -- Back cover.

" iMaths is a whole school numeracy program written for the Essential Learnings. The engaging iMaths investigations ask students to plan, question, apply their understanding, use technolgies and reflect within real-life mathematical contexts. iMaths comprehensively addresses both dimensions of the Esssentials Learning: knowledge and understanding - developed through iMaths topcs [and] Ways of working - applied and practiced through iMaths investigations". -- Back cover.

This volume, dedicated to the memory of the great American mathematician Bertram Kostant (May 24, 1928 – February 2, 2017), is a collection of 19 invited papers by leading mathematicians working in Lie theory, representation theory, algebra, geometry, and mathematical physics. Kostant's fundamental work in all of these areas has provided deep new insights and connections, and has created new fields of research. This volume features the only published articles of important recent results of the contributors with full details of their proofs. Key topics include: Poisson structures and potentials (A. Alekseev, A. Berenstein, B. Hoffman) Vertex algebras (T. Arakawa, K. Kawasetsu) Modular irreducible representations of semisimple Lie algebras (R. Bezrukavnikov, I. Losev) Asymptotic Hecke algebras (A. Braverman, D. Kazhdan) Tensor categories and quantum groups (A. Davydov, P. Etingof, D. Nikshych) Nil-Hecke algebras and Whittaker D-modules (V. Ginzburg) Toeplitz operators (V. Guillemin, A. Uribe, Z. Wang) Kashiwara crystals (A. Joseph) Characters of highest weight modules (V. Kac, M. Wakimoto) Alcove polytopes (T. Lam, A. Postnikov) Representation theory of quantized Gieseker varieties (I. Losev) Generalized Bruhat cells and integrable systems (J.-H. Liu, Y. Mi) Almost characters (G. Lusztig) Verlinde formulas (E. Meinrenken) Dirac operator and equivariant index (P.-É. Paradan, M. Vergne) Modality of representations and geometry of ?-groups (V. L. Popov) Distributions on homogeneous spaces (N. Ressayre) Reduction of orthogonal representations (J.-P. Serre)

This book is for mathematics lovers, but if you are not one, we hope you soon will be. Although it mainly targets enthusiasts in high-school and liberal arts colleges, the book is structured to make learning interesting for students with different interests and backgrounds. Practice questions are of various levels of complexity and include many explorations of real-life situations: They develop understanding, build confidence and examine multiple concepts. Challenges have been included for the adventurous, while Investigations are suggested for self-study. The Escapades chapter contains stimulating puzzles to encourage experimentation, a list of unsolved mathematical problems, and a collection of wonderful theorems. The book includes simple tips to help the reader relax and re-energise. About the Authors: Adeline Ng and Dr. Rajesh Parwani are educators based in Singapore.

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program.' -- Back cover.

An authorised reissue of the long out of print classic textbook, Advanced Calculus by the late Dr Lynn Loomis and Dr Shlomo Sternberg both of Harvard University has been a revered but hard to find textbook for the advanced calculus course for decades. This book is based on an honors course in advanced calculus that the authors gave in the 1960's. The foundational material, presented in the unstarred sections of Chapters 1 through 11, was normally covered, but different applications of this basic material were stressed from year to year, and the book therefore contains more material than was covered in any one year. It can accordingly be used (with omissions) as a text for a year's course in advanced calculus, or as a text for a three-semester introduction to analysis. The prerequisites are a good grounding in the calculus of one variable from a mathematically rigorous point of view, together with some acquaintance with linear algebra. The reader should be familiar with limit and continuity type arguments and have a certain amount of mathematical sophistication. As possible introductory texts, we mention Differential and Integral Calculus by R Courant, Calculus by T Apostol, Calculus by M Spivak, and Pure Mathematics by G Hardy. The reader should also have some experience with partial derivatives. In overall plan the book divides roughly into a first half which develops the calculus (principally the differential calculus) in the setting of normed vector spaces, and a second half which deals with the calculus of differentiable manifolds.

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IMaths is a whole school numeracy program written for the Essential Learnings. The iMaths tracker books contain an assessment page for each of the iMaths topics with carefully designed questions in increasing order of difficulty. This provides a yearly record of a student's progress and achievement in the knowledge and understanding dimension of the Essential Learnings, developed through the iMaths topics. This tracker book also contains a Student Achievement Profile to summarise the student's achievement throughout the year'-- Back cover.

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iMaths is an investigative-based numeracy program that comprehensively addresses both the content and proficiency strands of the Australian curriculum. Content strands - Number & Algebra, Measurement & Geometry, and Statistics & Probability - are developed through iMaths Topics. Proficiency strands - Understanding, Fluency, Problem Solving and Reasoning - are applied and practised through iMaths Investigations. Investigations foster deeper

understanding of maths concepts, as students use critical and creative thinking skills within real-life mathematical contexts. This Teacher Book includes: notes, solutions and strategies for each Investigation; an A - E rubric for each Investigation; answers to Student Book Topics; solutions to problem solving tasks; answers to Tracker Book assessment items; and answers to readiness test.

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