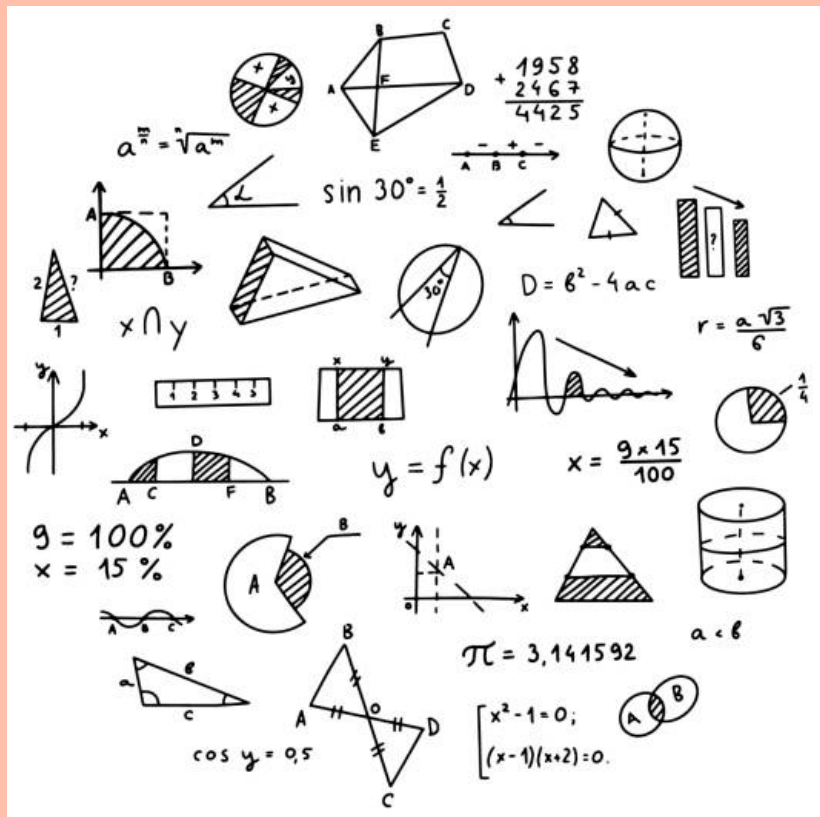


*Understanding*  
*APPLIED*  
*Mathematics*



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## Preface

This book (*Applied Mathematics*) is designed to provide comprehensive coverage of the three key areas of Advanced Level Mathematics: *Statistics*, *Mechanics*, and *Numerical Methods*. It is tailored specifically for students in Uganda preparing for the Uganda Advanced Certificate of Education (UACE) examinations, offering an in-depth exploration of these subjects in alignment with the current curriculum requirements.

Mathematics at this level demands both theoretical understanding and practical application. With this in mind, the book has been carefully structured to balance detailed explanations with numerous worked-out examples. These examples are intended to aid learners in developing problem-solving techniques, enhancing their understanding of key concepts, and building confidence in applying mathematical principles to a variety of real-world scenarios.

The *Statistics* section introduces fundamental concepts in data analysis, probability, and inferential statistics, equipping students with the tools to interpret data and make informed decisions. In the *Mechanics* section, learners will delve into the principles of forces, motion, and energy, which form the foundation of engineering and physical sciences. The *Numerical Methods* section covers techniques for solving mathematical problems using algorithms and approximation methods, essential in today's world of computational mathematics.

Each topic is presented with clarity, reinforced by step-by-step solutions to ensure that students grasp the underlying principles before progressing to more complex problems. The examples provided throughout the text serve as a practical guide, illustrating how to approach and solve different types of mathematical challenges.

To further support students in their preparation for the UACE examinations, this book includes a dedicated section at the end containing past examination papers from 2013 to 2019. These papers are accompanied by fully worked solutions, allowing learners to practice, assess their progress, and familiarize themselves with the examination format.

This book is more than a resource for passing exams—it is a tool for mastering Advanced Level Mathematics. We hope it will empower learners to excel not only in their UACE exams but also in their future academic and professional pursuits in mathematics and related fields.

We wish all students using this book every success in their studies and future endeavors.

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