

Mathematics HL Core 2nd Edition Worked Solutions

The digital age provides ample opportunities for enhanced learning experiences for students; however, it can also present challenges for educators who must adapt to and implement new technologies in the classroom. The Handbook of Research on Transforming Mathematics Teacher Education in the Digital Age is a critical reference source featuring the latest research on the development of educators' knowledge for the integration of technologies to improve classroom instruction. Investigating emerging pedagogies for preservice and in-service teachers, this publication is ideal for professionals, researchers, and educational designers interested in the implementation of technology in the mathematics classroom.

REA's Praxis Core Academic Skills for Educators Test Prep with Online Practice Tests (2nd ed.) Gets You Certified and in the Classroom! "Unlike so many of the books on the market, this REA volume ... is 100% up-to-date. This book is well-informed about all the changes that have been made to the Praxis exam..., and it discusses all the question formats that you will see on your Praxis exam." —Mike McGarry, Test Prep Instructor, Magoosh Read the full Magoosh review. The Praxis Core tests are used to gauge the skills and content knowledge of candidates entering teacher preparation programs and are used for initial teacher certification in more than 30 states and U.S. territories, as well as the U.S. Department of Defense Education Activity. REA's Praxis: Core Academic Skills for Educators - Reading (5712), Writing (5722), and Mathematics (5732) test prep helps you master the information on this exam, bringing you one step closer to being certified to teach. It's perfect for college students, out-of-state teachers, and career-changing professionals. Completely aligned with the Common Core State Standards and written by seasoned test-prep experts, our study package contains in-depth reviews of all the reading, writing, and mathematics content tested on the Praxis Core exam. A diagnostic test for each exam is offered online to help pinpoint your strengths and weaknesses. This test prep package includes 6 full-length practice tests (two each for reading, writing, and math - available both in the book and online) that cover every type of question, subject area, and skill tested on the exams. Are you a career changer or just need more brush-up on your math? Try our 4 math mini-tests. The book's online tests are timed and offer detailed scoring analysis and diagnostic tools so you can easily see where you need to focus your study. This complete test prep package comes with a handy study schedule, self-evaluation grid, as well as REA's proven test-taking tips and strategies. Go with the test guide that the test prep pros at Magoosh say provides "high-quality instruction in all three subject areas." This test prep is a must-have for teacher candidates across the United States who want an extra edge on the Praxis Core tests!

This work by Zorich on Mathematical Analysis constitutes a thorough first course in real analysis, leading from the most elementary facts about real numbers to such advanced topics as differential forms on manifolds, asymptotic methods, Fourier, Laplace, and Legendre transforms, and elliptic functions.

Math in Society is a survey of contemporary mathematical topics, appropriate for a college-level topics course for liberal arts major, or as a general quantitative reasoning course.This book is an open textbook; it can be read free online at <http://www.opentextbookstore.com/mathinsociety/>. Editable versions of the chapters are available as well.

Math in Society

Mathematics - Applications and Interpretation

Pearson Baccalaureate Chemistry Higher Level 2nd Edition Print and Online Edition for the IB Diploma

Mathematics for the International Student: Worked solutions

Mathematics-Higher Level-Pearson Baccalaureate for Ib Diploma Programs

Family Math Night 6-8

Featuring a wealth of digital content, this concept-based Print and Enhanced Online Course Book Pack has been developed in cooperation with the IB to provide the most comprehensive support for the new DP Mathematics: analysis and approaches HL syllabus, for first teaching in September 2019.

As teaching strategies continue to change and evolve, and technology use in classrooms continues to increase, it is imperative that their impact on student learning is monitored and assessed. New practices are being developed to enhance students' participation, especially in their own assessment, be it through peer-review, reflective assessment, the introduction of new technologies, or other novel solutions. Educators must remain up-to-date on the latest methods of evaluation and performance measurement techniques to ensure that their students excel. Learning and Performance Assessment: Concepts, Methodologies, Tools, and Applications is a vital reference source that examines emerging perspectives on the theoretical and practical aspects of learning and performance-based assessment techniques and applications within educational settings. Highlighting a range of topics such as learning outcomes, assessment design, and peer assessment, this multi-volume book is ideally designed for educators, administrative officials, principals, deans, instructional designers, school boards, academicians, researchers, and education students seeking coverage on an educator's role in evaluation design and analyses of evaluation methods and outcomes.

Though it incorporates much new material, this new edition preserves the general character of the book in providing a collection of solutions of the equations of diffusion and describing how these solutions may be obtained.

Arguing that students should be writing in math class, the author describes five types of writing assignments for math and presents student work to illustrate her approach and suggestions and tips for teachers.

Mathematics HL (core)

Common Core Mathematics Standards and Implementing Digital Technologies

Learning and Understanding

Common Core Mathematics in a PLC at Work®, Leader's Guide

Praxis Core Academic Skills for Educators, 2nd Ed.: Reading (5712), Writing (5722), Mathematics (5732) Book + Online

Mathematical Analysis I

The study reported in this volume adds to the growing body of evaluation studies that focus on the use of NSF-funded Standards-based high school mathematics curricula. Most previous evaluations have studied the impact of field-test versions of a curriculum. Since these innovative curricula were so new at the time of many of these studies, students and teachers were relative novices in their use. These earlier studies were mainly one year or less in duration. Students in the comparison groups were typically from schools in which some classes used a Standards-based curriculum and other classes used a conventional curriculum, rather than using the Standards-based curriculum with all students as curriculum developers intended. The volume reports one of the first studies of the efficacy of Standards-based mathematics curricula with all of the following characteristics: · The study focused on fairly stable implementations of a first-edition Standards-based high school mathematics curriculum that was used by all students in each of three schools. · It involved students who experienced up to seven years of Standards-based mathematics curricula and instruction in middle school and high school. · It monitored students' mathematical achievement, beliefs, and attitudes for four years of high school and one year after graduation. · Prior to the study, many of the teachers had one or more years of experience teaching the Standards-based curriculum and/or professional development focusing on how to implement the curriculum well. · In the study, variations in levels of implementation of the curriculum are described and related to student outcomes and teacher behavior variables. Item data and all unpublished testing instruments from this study are available at www.wmich.edu/cmpm/ for use as a baseline of instruments and data for future curriculum evaluators or Core-Plus Mathematics users who may wish to compare results of new groups of students to those in the present study on common tests or surveys. Taken together, this volume, the supplement at the CPMP Web site, and the first edition Core-Plus Mathematics curriculum materials (samples of which are also available at the Web site) serve as a fairly complete description of the nature and impact of an exemplar of first edition NSF-funded Standards-based high school mathematics curricula as it existed and was implemented with all students in three schools around the turn of the 21st century.

Assessment is a key driver in mathematics education. This book examines computer aided assessment (CAA) of mathematics in which computer algebra systems (CAS) are used to establish the mathematical properties of expressions provided by students in response to questions. In order to automate such assessment, the relevant criteria must be encoded and, in articulating precisely the desired criteria, the teacher needs to think very carefully about the goals of the task. Hence CAA acts as a vehicle to examine assessment and mathematics education in detail and from a fresh perspective. One example is how it is natural for busy teachers to set only those questions that can be marked by hand in a straightforward way, even though the constraints of paper-based formats restrict what they do and why. There are other kinds of questions, such as those with non-unique correct answers, or where assessing the properties requires the marker themselves to undertake a significant computation. It is simply not sensible for a person to set these to large groups of students when marking by hand. However, such questions have their place and value in provoking thought and learning. This book, aimed at teachers in both schools and universities, explores how, in certain cases, different question types can be automatically assessed. Case studies of existing systems have been included to illustrate this in a concrete and practical way.

Uniquely developed with the IB curriculum team, this fully comprehensive student book will ensure your students achieve their best. Fully capturing the IB philosophy via lots of TOK, a huge bank of practice, a free eBook and dedicated support for the Exploration will set you and your learners up to succeed.

Completely revised new editions of the market-leading Chemistry textbooks for HL and SL, written for the new 2014 Science IB Diploma curriculum. Now with an accompanying four-year student access to an enhanced eText, containing simulations, animations, quizzes, worked solutions, videos and much more. The enhanced eText is also available to buy separately and works on desktops and tablets - click here to watch a video to learn more. Follows the organizational structure of the new Chemistry guide, with a focus on the Essential Ideas, Understanding, Applications & Skills for complete syllabus-matching. Written by the highly experienced IB author team of Catrin Brown and Mike Ford, with additional e-features by Richard Thornley and David Moore, you can be confident that you and your students have all the resources you will need for the new Chemistry curriculum. Features: Nature of Science and ToK boxes throughout the text ensure an embedding of these core considerations and promote concept-based learning. Applications of the subject through everyday examples are described in utilization boxes, as well as brief descriptions of related industries, to help highlight the relevance and context of what is being learned. Differentiation is offered in the Challenge Yourself exercises and activities, along with guidance and support for laboratory work on the page and online. Exam-style assessment opportunities are provided from real past papers, along with hints for success in the exams, and guidance on how to avoid common pitfalls. Clear links are made to the Learner profile and the IB core values. Table of Contents: Stoichiometric Relationships Atomic Structure Periodicity Chemical Bonding and Structure Energetics/Thermochemistry Chemical Kinetics Equilibrium Acids and Bases Redox Processes Organic Chemistry Measurement and Data Processing Option A: Materials Option B: Biochemistry Option C: Energy Option D: Medicinal Chemistry

Common Core State Standards in Action

Mathematics 2012

IB Mathematics Higher Level Course Book

Common Core Mathematics in a PLC at Work®, Grades 6-8

Mathematics for the International Student

For the IB diploma

Build solid mathematical understanding and develop meaningful conceptual connections. The inquiry-based approach holistically integrates the MYP key concepts, helping you shift to a concept-based approach and cement comprehension of mathematical principles. Fully comprehensive and matched to the Revised MYP, this resource builds student potential at MYP and lays foundations for cross-curricular understanding. Using a unique question cycle to sequentially build skills and comprehension, units introduce factual questions, followed by concept-based questions and conclude with debatable questions. This firm grounding in inquiry-based learning equips learners to actively explore mathematical concepts and relate them to the wider 21st Century world, strengthening comprehension. Progress your learners into IB Diploma - fully comprehensive and matched to the Revised MYP Develop conceptual understanding in the best way for your learners - learn by mathematical unit or by key concept Drive ac critical ex

This book takes a fresh look at programs for advanced studies for high school students in the United States, with a particular focus on the Advanced Placement and the International Baccalaureate programs, and asks how advanced studies can be significantly improved in general. It also examines two of the core issues surrounding these programs: they can have a profound impact on other components of the education system and participation in the programs has become key to admission at selective institutions of higher education. By looking at what could enhance the quality of high school advanced study programs as well as what precedes and comes after these programs, this report provides teachers, parents, curriculum developers, administrators, college science and mathematics faculty, and the educational research community with a detailed assessment that can be used to guide change within advanced study programs.

Offers coverage of the syllabus requirements and the higher level options IB Maths Diploma.

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 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 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.

Learning and Performance Assessment: Concepts, Methodologies, Tools, and Applications

Revised

Statistical Power Analysis for the Behavioral Sciences

Mathematics Higher Level (core)

Concepts, Methodologies, Tools, and Applications

Comprehensive Mathematics for Computer Scientists 1

This book has been designed specifically to support the student through the IB Diploma Programme in Mathematical Studies. It includes worked examples and numerous opportunities for practice. In addition the book will provide students with features integrated with study and learning approaches, TOK and the IB learner profile. Examples and activities drawn from around the world will encourage students to develop an international perspective.

Host Family Math Nights at your middle school—starting today! Family Math Nights are a great way for teachers to get parents involved in their children's education and to promote math learning outside of the classroom. In this practical book, you'll find step-by-step guidelines and activities to help you bring Family Math Nights to life. The enhanced second edition is aligned with the Common Core State Standards for Mathematical Content and Practice with new activities to help students explain their answers and write about math. It also comes with ready-to-use handouts that you can distribute during your event. With the resources in this book, you'll have everything you need to help students learn essential math concepts—including ratios and proportional relationships, the number system, expressions and equations, geometry, and statistics and probability—in a fun and supportive environment. Special Features: The book is organized by math content, so you can quickly find activities that meet your needs. Each activity is easy to implement and includes a page of instructions educators can use to prepare the station, as well as a page for families that explains the activity and can be photocopied and displayed at the station. All of the family activities can be photocopied or downloaded from our website, www.routledge.com/9781138200999, so that you can distribute them during your event.

This leader companion to the grade-level teacher guides illustrates how to sustain successful implementation of the Common Core State Standards for mathematics. Discover what students should learn and how they should learn it. Comprehensive research-affirmed analysis tools and strategies will help collaborative teams develop and assess student demonstrations of deep conceptual understanding and procedural fluency.

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 Potmčšile 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

Mathematics Higher Level for the IB Diploma

Improving Advanced Study of Mathematics and Science in U.S. High Schools

Building Students' Critical Thinking, Grades 6-12

Computer Aided Assessment of Mathematics

Mathematics: Applications and Interpretation HL

Analysis and Approaches SL.

Contains all the mathematics that computer scientists need to know in one place.

Written by an expert author team consisting of former IB chief examiners, senior examiners and assistant examiners, experienced IB workshop leaders, and teachers with more than 160 years of combined teaching experience.

This teacher guide illustrates how to sustain successful implementation of the Common Core State Standards for mathematics, grades 6–8. Discover what students should learn and how they should learn it at each grade level. Comprehensive research-affirmed analysis tools and strategies will help you and your collaborative team develop and assess student demonstrations of deep conceptual understanding and procedural fluency.

Mathematics for the International StudentMathematics HL (core)Mathematics for the International StudentMathematics HL (core) for Use with IB Diploma Programme : Exam Preparation & Practice GuideMathematics 2012Heinemann Educational Publishers

A Five-Year Study of the First Edition of the Core-Plus Mathematics Curriculum

An Introduction to Numerical Methods and Analysis

Pearson Baccalaureate Physics Higher Level 2nd Edition Print and Ebook Bundle for the IB Diploma

Thinking Mathematically

A Resource for Grades 2-8

What knowledge of mathematics do secondary school math teachers need to facilitate understanding, competency, and interest in mathematics for all of their students? This unique text and resource bridges the gap between the mathematics learned in college and the mathematics taught in secondary schools. Written in an informal, clear, and interactive learner-centered style, it is designed to help pre-service and in-service teachers gain the deep mathematical insight they need to engage their students in learning mathematics in a multifaceted way that is interesting, developmental, connected, deep, understandable, and often, surprising and entertaining. Features include Launch questions at the beginning of each section, Student Learning Opportunities, Questions from the Classroom, and highlighted themes throughout to aid readers in becoming teachers who have great "MATH-N-SIGHT": M Multiple Approaches/Representations A Applications to Real Life T Technology H History N Nature of Mathematics: Reasoning and Proof S Solving Problems I Interlinking Concepts: Connections G Grade Levels H Honing of Mathematical Skills T Typical Errors This text is aligned with the recently released Common Core State Standards, and is ideally suited for a capstone mathematics course in a secondary mathematics certification program. It is also appropriate for any methods or mathematics course for pre- or in-service secondary mathematics teachers, and is a valuable resource for classroom teachers.

IB Higher Mathematics for the Diploma Programme provides everything you need for the Core IB Diploma Programme in Higher Maths. It is packed with carefully levelled exercises and exam practise along with advice. In addition, there is background material to help students connect maths to the real world. Included is a CD with a PDF of the entire book with preparation and extra practise material.

Sharpen concrete teaching strategies that empower students to reason-and-prove What does reasoning-and-proving instruction look like and how can teachers support students' capacity to reason-and-prove? Designed as a learning tool for mathematics teachers in grades 6-12, this book transcends all mathematical content areas with a variety of activities for teachers that include Solving and discussing high-level mathematical tasks Analyzing narrative cases that make the relationship between teaching and learning salient Examining and interpreting student work Modifying curriculum materials and evaluating learning environments to better support students to reason-and-prove No other book tackles reasoning-and-proving with such breath, depth, and practical applicability.

Standards in the American education system are traditionally handled on a state-by-state basis, which can differ significantly from one region of the country to the next. Recently, initiatives proposed at the federal level have attempted to bridge this gap. Common Core Mathematics Standards and Implementing Digital Technologies provides a critical discussion of educational standards in mathematics and how communication technologies can support the implementation of common practices across state lines. Leaders in the fields of mathematics education and educational technology will find an examination of the Common Core State Standards in Mathematics through concrete examples, current research, and best practices for teaching all students regardless of grade level or regional location. This book is part of the Advances in Educational Technologies and Instructional Design series collection.

Mathematics HL (core) for Use with IB Diploma Programme : Exam Preparation & Practice Guide

The Mathematics of Diffusion

Mathematics

Process Data in Educational and Psychological Measurement, 2nd Edition

A concept-based approach

Cambridge IGCSE International Mathematics (0607) Extended (2nd Edition)

"Thinking Mathematically" seeks to turn this familiar statement into a promise of opportunity and exploration. The examples provided offer both a contextual and procedural base that students can easily build upon.

Praise for the First Edition ". . . outstandingly appealing with regard to its style, contents, considerations of requirements of practice, choice of examples, and exercises." —Zentrablatt Math ". . . carefully structured with many detailed worked examples . . ." —The Mathematical Gazette ". . . an up-to-date and user-friendly account . . ." —Mathematika **An Introduction to Numerical Methods and Analysis** addresses the mathematics underlying approximation and scientific computing and successfully explains where approximation methods come from, why they sometimes work (or don't work), and when to use one of the many techniques that are available. Written in a style that emphasizes readability and usefulness for the numerical methods novice, the book begins with basic, elementary material and gradually builds up to more advanced topics. A selection of concepts required for the study of computational mathematics is introduced, and simple approximations using Taylor's Theorem are also treated in some depth. The text includes exercises that run the gamut from simple hand computations, to challenging derivations and minor proofs, to programming exercises. A greater emphasis on applied exercises as well as the cause and effect associated with numerical mathematics is featured throughout the book. An Introduction to Numerical Methods and Analysis is the ideal text for students in advanced undergraduate mathematics and engineering courses who are interested in gaining an understanding of numerical methods and numerical analysis.

Statistical Power Analysis is a nontechnical guide to power analysis in research planning that provides users of applied statistics with the tools they need for more effective analysis. The Second Edition includes: * a chapter covering power analysis in set correlation and multivariate methods; * a chapter considering effect size, psychometric reliability, and the efficacy of "qualifying" dependent variables and; * expanded power and sample size tables for multiple regression/correlation.

Featuring a wealth of digital content, this concept-based Print and Enhanced Online Course Book Pack has been developed in cooperation with the IB to provide the most comprehensive support for the new DP Mathematics: applications and interpretation HL syllabus, for first teaching in September 2019.

The Mathematics that Every Secondary Math Teacher Needs to Know

Handbook of Research on Transforming Mathematics Teacher Education in the Digital Age

Sets and Numbers, Graphs and Algebra, Logic and Machines, Linear Geometry

Advanced Calculus

Partial Differential Equations

Mathematical Studies

Completely revised new editions of the market-leading Physics textbooks for HL and SL, written for the new 2014 Science IB Diploma curriculum. Now with an accompanying four-year student access to an enhanced eText, containing simulations, animations, quizzes, worked solutions, videos and much more. The enhanced eText is also available to buy separately and works on desktops and tablets. Follows the organizational structure of the new Physics guide, with a focus on the Essential Ideas, Understanding, Applications & Skills for complete syllabus-matching. Written by a highly experienced IB author, Chris Hamper, you can be confident that you and your students have all the resources you will need for the new Physics curriculum. Features: Nature of Science and TOK boxes throughout the text ensure an embedding of these core considerations and promote concept-based learning. Applications of the subject through everyday examples are described in utilization boxes, as well as brief descriptions of related industries, to help highlight the relevance and context of what is being learned. Differentiation is offered in the Challenge Yourself exercises and activities, along with guidance and support for laboratory work on the page and online. Exam-style assessment opportunities are provided from real past papers, along with hints for success in the exams, and guidance on avoiding common pitfalls. Clear links are made to the Learner profile and the IB core values. Table of Contents: Measurements and Uncertainties Mechanics Thermal Physics Oscillations and Waves Electricity and Magnetism Circular Motion and Gravitation Atomic, Nuclear, and Particle Physics Energy Production Wave Phenomena Fields Electromagnetic Induction Quantum and Nuclear Physics Option A: Relativity Option B: Engineering Physics Option C: Imaging Option D: Astrophysics for use with the Cambridge IGCSE International Mathematics (0607) Extended syllabus may also be used for pre-IB Diploma requirements and other middle years courses one book for a two-year course includes chapters on 'Multi-Topic Questions' and 'Investigations and Modelling' graphics calculator instructions included digitally wide range of graded exercises from routine practice and basic skills consolidation, to more demanding problem solving exercises plenty of worked examples with step-by-step instructions, supported by Self Tutor includes exam questions from past papersThe book embraces technology, problem solving, investigating and modelling, and offers students different learning experiences.This book has been written to cover the Cambridge IGCSE? International Mathematics (0607) Extended syllabus for examination from 2020. The book is endorsed by Cambridge Assessment International Education.The material is presented in a clear, easy-to-follow style, free from unnecessary distractions, while effort has been made to contextualise questions so that students can relate concepts to everyday use. In this second edition, many of the chapters have been reordered and restructured, allowing for a more logical progression of ideas and difficulty.Seven chapters of 'assumed knowledge' are accessible online for those who want to ensure that they have the prerequisite levels of understanding for the course. The last two chapters in the book are devoted to multi-topic questions, and investigations and modelling. Review exercises appear at the end of each chapter, and answers are given at the end of the book.The accompanying digital book is accessed through our Snowflake platform. It contains our Self-Tutor software, geometry and graphics software, demonstrations and simulations, and the assumed knowledge chapters. The digital book is a complete copy of the text of the book, so students can view it on a home computer or tablet and keep the textbook at school. We are working with Cambridge Assessment International Education towards endorsement of the digital version of the book.

Partial Differential Equations presents a balanced and comprehensive introduction to the concepts and techniques required to solve problems containing unknown functions of multiple variables. While focusing on the three most classical partial differential equations (PDEs)the wave, heat, and Laplace equationsthis detailed text also presents a broad practical perspective that merges mathematical concepts with real-world application in diverse areas including molecular structure, photon and electron interactions, radiation of electromagnetic waves, vibrations of a solid, and many more. Rigorous pedagogical tools aid in student comprehension; advanced topics are introduced frequently, with minimal technical jargon, and a wealth of exercises reinforce vital skills and invite additional self-study. Topics are presented in a logical progression, with major concepts such as wave propagation, heat and diffusion, electrostatics, and quantum mechanics placed in contexts familiar to students of various fields in science and engineering. By understanding the properties and applications of PDEs, students will be equipped to better analyze and interpret central processes of the natural world.

We Reason & We Prove for ALL Mathematics

An Introduction

MYP Mathematics 1

Mathematics - Analysis and Approaches

Writing in Math Class