

Foreword

International Baccalaureate describes IB learners as “inquisitive, knowledgeable, thoughtful, communicative, principled, open-minded, caring, risk-taking, balanced, and reflective.” We at NTK fully agree that these are essential qualities for a well-rounded young student to develop, and the NTK Learning Center has always emphasized a student’s overall development as a person. Nonetheless, we do realize that to become that person, a student must also possess the discipline and focus to succeed in his or her academic studies.

Therefore NTK is pleased to present its *NTK IB* Mathematics Standard Level* practice book, created to help students raise their grades in IB Mathematics SL. Created by our team of experienced math teachers and specialists, the book contains 6 practice exams with each and every question designed to help students sharpen their test-taking skills.

Now marching into its second decade as one of the leading educational preparatory institutions in Asia, NTK continues to offer its expertise and experience to students to help them realize their potentials and maximize their opportunities. We hope that you will join them in allowing us to prepare you for a successful academic future.

NTK Learning Center

*IB is a registered trademark of International Baccalaureate, which is not involved in the production of, and does not endorse, this book.



**C
O
N
T
E
N
T
S**

Introduction	P.1
Practice Examination 1 Paper 1	P.3
Practice Examination 1 Paper 2	P.11
Practice Examination 2 Paper 1	P.21
Practice Examination 2 Paper 2	P.29
Practice Examination 3 Paper 1	P.39
Practice Examination 3 Paper 2	P.47
Practice Examination 4 Paper 1	P.55
Practice Examination 4 Paper 2	P.63
Practice Examination 5 Paper 1	P.71
Practice Examination 5 Paper 2	P.79
Practice Examination 6 Paper 1	P.85
Practice Examination 6 Paper 2	P.93
Solutions to Practice Examination 1 Paper 1	P.101
Solutions to Practice Examination 1 Paper 2	P.109
Solutions to Practice Examination 2 Paper 1	P.114
Solutions to Practice Examination 2 Paper 2	P.120
Solutions to Practice Examination 3 Paper 1	P.127
Solutions to Practice Examination 3 Paper 2	P.133
Solutions to Practice Examination 4 Paper 1	P.138
Solutions to Practice Examination 4 Paper 2	P.144
Solutions to Practice Examination 5 Paper 1	P.150
Solutions to Practice Examination 5 Paper 2	P.157
Solutions to Practice Examination 6 Paper 1	P.163
Solutions to Practice Examination 6 Paper 2	P.168

Introduction

NTK Mathematics Standard Level (SL) was created to help boost your confidence, give you valuable feedback, and raise your final grade in Mathematics SL. This book contains 6 practice examinations similar in style and difficulty level to the IB Mathematics SL component of the IB Diploma. Just as on the actual examination, each practice examination consists of two papers: Paper 1 and Paper 2. On Paper 1 you should not use a calculator while on Paper 2 you will definitely need a graphing display calculator to answer some of the questions.

About the IB Mathematics Exam

The IB Mathematics (Standard Level) examination is organized by the IB and held in early May of each year. The test covers seven topics: **algebra, functions and equations, circular functions and trigonometry, matrices, vectors, statistics and probability** and **calculus**. There are two 90-min papers. No calculator is allowed on paper 1 while a graphing display calculator (GDC) is required on paper 2. Grading ranges from 1 to 7, with this score carrying 80% of the total weight of your grade and the remaining 20% coming your school's internal assessment.

Calculators

You should check with IB for exact details on which models are allowed, as there are constant updates. Basically, you need a calculator which is capable of graphing functions, performing matrix arithmetic, and generating statistical output. You are at present not allowed to have a calculator that can perform algebraic simplifications.

Using the book

Set aside 90 minutes for each paper and complete it in one session. See how far you get after that time. If you did not manage to get to the end of the paper you will need to improve your time management skills. The last parts of a question are often more difficult than the beginning. If you are short of time it may be better for you to try the first few parts of the remaining questions and then return to the longer parts. Of course, if you do that you may lose continuity; you will have to decide what works best for you. When you finish a test and have marked it, note any consistently weak areas. Perhaps it's the chain rule or finding the angle between two vectors. Perhaps it's finding volumes of revolution. Don't waste time reviewing material you already know well; use your weak areas profile to focus your revision on those areas that are less strong.

For paper 1, where a calculator is not allowed, as you read through the solutions, work by yourself through the basic computational steps to see whether you can get the answers. Though some of you may think this is silly, it's critical for paper 1 as you need to do all the basic computations by yourself **WITHOUT** a calculator.

For paper 2, where a graphing calculator is required, when you read through the solution to a problem, take out your calculator and see whether you know how to input the data and get the answers and/or the graphs.

Tips and Advice

- Don't spend too much time on the questions that you don't know: it is not worth spending half an hour to get 5 marks.
- Always look at the marks for each part so you can expect how long you need to work on it.
- Spend 15-30 seconds double-checking your answers before moving on to the next question. Time for the IB exam is tight and in most cases you won't have time to go back and check.
- Try not to depend on the calculator too much or you may find yourself in trouble on paper 1 where no calculator is allowed.
- Become familiar with your "exam tools" – graphing display calculator and formula booklet. Make sure you know every necessary function on your graphing calculator. You need not remember the exact location for every formula in the booklet, but at least you need to know the topic for each formula, enabling you to find it more quickly during the exam.