Introduction

This book is aimed at students studying A level or IB mathematics in their last year or two at school, teachers looking for ideas to stretch their bright students and anyone who enjoys mathematics and is looking for something interesting to read.

This is not a text book. It will not help you pass exams. The topics covered are not usually taught at school. But it will show you some of the breadth of mathematics from the first chapter where we see the difficulties in designing voting systems to the last chapter where we see that some infinite numbers are bigger than others.

Each chapter is short. It is just a starting point. If you find a chapter interesting then an internet search will give you lots more information about that topic. See Appendix 3.

You will need to think hard when reading this book. There are exercises (with solutions) for you to do. You will need a pencil, some paper and a waste-paper-basket.

The chapters cover different topics and you don't need to read them in order. Roughly speaking, the easier chapters are nearer the front of the book. If there is something you don't understand then just skip over it.