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*Maths and numeracy tutor*



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## *About the Author*

**Colin Beveridge** is a maths confidence coach for Flying Colours Maths, author of *Basic Maths For Dummies* and co-author of the *Little Algebra Book*.

He holds a PhD in Mathematics from the University of St Andrews and worked for several years on NASA's Living With A Star project at Montana State University, where he came up with an equation which is named after him. It's used to help save the world from being destroyed by solar flares. So far so good.

He became tired of the glamour of academia and returned to the UK to concentrate on helping students come to terms with maths and show that not all mathematicians are boring nerds; some are exciting, relatively well-adjusted nerds.

Colin lives in Poole, Dorset with an espresso pot, several guitars and nothing to prove. Feel free to visit his website at [www.flyingcoloursmaths.co.uk](http://www.flyingcoloursmaths.co.uk) or follow him on Twitter at [www.twitter.com/icecolbeveridge](http://www.twitter.com/icecolbeveridge).





## ***Dedication***

For my students and teachers, past and present.

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# Introduction

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**H**i, I'm Colin, and I want maths to be easy for you.

I don't want to turn you into a geek like me – I couldn't if I tried. I don't want to cram maths down your throat, either – that would be pretty rude.

All I want to do is help you learn enough maths to do well in your numeracy test and to feel confident tackling the kinds of maths problems that will come up in your future career and/or studies.

As you work through this book, answering the questions will get quicker and easier with time and practice, and you'll be in great shape for your numeracy test. Once you have that, you may never have to do another maths test again! Here's hoping!

I'd love to hear how you get on. The best way to catch me is on Twitter (I'm <http://twitter.com/icecolbeveridge>) – I'll read your news and get back to you if I can!

## *About This Book*

This book is for you if you have to take a numeracy test in order to follow your chosen career path or to qualify for further study.

I take you through the maths you need to know to do well in these tests and try to help you understand how it all fits together.

Maths might sometimes look like a chaotic system of funny symbols and bizarre rules, but it's actually a very neat and concise way to communicate information.

I break down maths into smaller, simpler parts that I hope you'll understand.

Among other things, I cover the following in this book:

- ✔ **Preparing for your test** – both for studying and for keeping yourself calm while you sit it.
- ✔ **Working with whole numbers** – the ‘big four’ of adding, subtracting, multiplying and dividing are pretty much the key to doing well in numeracy tests.
- ✔ **Handling maths on paper** – the dreaded ‘mental arithmetic’ questions don’t have to be dreadful!
- ✔ **Dealing with decimals and fractions** – these are easier than they seem, honestly! You already use decimals every time you do anything with money, and you only need to know a few fraction rules.
- ✔ **Making sense of measurements** – you may have a head start here! If you’ve ever used a scale, a clock or a ruler, you have some idea of how measurements work.
- ✔ **Getting on top of graphs and tables** – reading data in a neat table or graph is normally easier than from a raw, disorganised list. Once you figure out the rules, you’re off to the races!

That sounds like fun, doesn’t it?

## *Conventions Used in This Book*

I keep the conventions to a minimum in this book. Here are the ones I use:

- ✔ I use *italics* for emphasis or to highlight new words or phrases.
- ✔ **Boldfaced text** indicates key words in bulleted lists or the key steps of action lists.
- ✔ Monotype font is used for Internet and email addresses.



## *Foolish Assumptions*

Making assumptions is always a risky business, but knowing where I'm coming from may put you at ease. So, in writing this book, I assume that:

- ✔ You know how to count and are familiar with the basic maths symbols.
- ✔ You understand the idea of money and changing a banknote for an equivalent value of coins or smaller notes.
- ✔ You know what the basic shapes look like.
- ✔ You're prepared to think fairly hard about maths and want either to pass a numeracy qualification or to simply brush up on your maths skills.

## *How this Book is Organised*

Like all *For Dummies* books, *Numeracy Tests For Dummies* is a reference book, and each topic is allotted its own part in the book. Within each part are individual chapters relating specifically to the topic in question.

### *Part 1: Preparing for Your Numeracy Test*

Part I is all about setting yourself up so that when you sit your exam you'll find it relatively easy to stay calm and show what you can do.

You'll learn about the various types of numeracy tests, what's in them and why you need to sit one, as well as how to prepare properly and what you need to do on test day.

## *Part II: A Whistle-Stop Tour of the Maths You Need*

This part is a quick but thorough guide to all the maths you need to know for your numeracy test. I cover:

- ✔ **Working with whole numbers** – the building blocks of maths and really, the key to doing well in any numeracy test.
- ✔ **Dealing with decimals, fractions and percentages** – a traditional stumbling block, but I show you how to deal with them quickly and confidently.
- ✔ **Making sense of measures** – nothing is particularly difficult about working with measurements (such as kilograms, miles and litres) compared to working with real numbers: all you need to remember is how to convert between units and you're most of the way there.
- ✔ **Getting to grips with graphs and statistics** – once you nail the vocabulary and remember how to work out the different types of average, you'll know pretty much all you need to.
- ✔ **Handling sums in your head** – many numeracy tests have a non-calculator component, in which you have to work out the sums on paper or a whiteboard. I take you through some of the tricks of the trade for doing well in this type of test.

## *Part III: Practice Tests*

Part III is all about checking what you know! In this part, I give you a whole range of tests on the various levels and topics so you can figure out what you can do already, and what you need to spend a bit more time studying.

The tests are followed by worked answers, where I explain how I reached the solution I came up with.

## Part IV: The Part of Tens

All *For Dummies* books finish with ‘The Part of Tens’, a bunch of lists full of practical tips to help you manage the material in the rest of the book.

I run you through ways of calming down and some ideas for remembering your number facts. I show you how to deal with some of the tougher questions examiners may set, and I offer some exam-technique tips so you can get in there and ace it.

## Icons Used in This Book

Here are the icons I use to draw your attention to particularly noteworthy paragraphs:



TIP

Theories are fine, but anything marked with a Tip icon in this book tells you something practical to help you get to the right answer. These are the tricks of the mathematical trade.



REMEMBER

Paragraphs marked with the Remember icon contain the key takeaways from the book and the essence of each subject.



WARNING!

The Warning icon highlights errors and mistakes that can cost you marks or your sanity, or both.



TECHNICAL STUFF

You can skip anything marked with the Technical Stuff icon without missing out on the main message, but you may find the information useful for a deeper understanding of the subject.

## Where to Go from Here

Now, no two numeracy exams are the same, and the different tests range over quite different types of content. Before you start studying a section, it’s a good idea to make sure it’s

part of the test you're working towards! Head to Chapter 1 for an explanation of what you're likely to find in each test. If you're in a hurry to see where you are, you may want to jump straight into the tests in Chapters 9–13. On the other hand, if you have plenty of time before you start the exam, you may prefer to start with Chapter 2 and set yourself up with a detailed study plan.

You can also use the index and Table of Contents to find the areas you want to study. This book is a reference – keep it with your maths kit and turn to it whenever you have something you want to look up!

I wish you the very best in your numeracy exam, and hope this book helps you to get the best mark you can. Good luck!

# Part I

# Preparing for Your Numeracy Test



'Before we start on the numeracy tests, I hope you're not feeling too nervous.'

## *In this part . . .*

**W**hatever kind of numeracy test you're taking, you need a solid plan of action for studying and for doing well in the exam. These chapters give you an idea of what each type of numeracy test involves, ways you can organise yourself to give yourself the best chance, and suggestions for how to handle exam day so you can make the most of your time in the test.