Record Nr.	UNINA9910456042003321
Autore	Attenborough Mary (Mary Patricia), <1954->
Titolo	Mathematics for electrical engineering and computing [[electronic resource] /] / Mary Attenborough
Pubbl/distr/stampa	Oxford ; ; Burlington, MA, : Newnes, 2003
ISBN	1-4175-0555-9 1-281-00303-4 9786611003036 0-08-047340-7
Edizione	[1st edition]
Descrizione fisica	1 online resource (563 p.)
Disciplina	510.2462
Soggetti	Electrical engineering - Mathematics Computer science - Mathematics Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Cover; Front matter; Half Title Page; Title Page; Copyright; Contents; Preface; Acknowledgements; Part 1: Sets, functions, and calculus; 1. Sets and functions; 1.1 Introduction; 1.2 Sets; 1.3 Operations on sets; 1.4 Relations and functions; 1.5 Combining functions; 1.6 Summary; 1.7 Exercises; 2. Functions and their graphs; 2.1 Introduction; 2.2 The straight line: y=mx+c; 2.4 The function y=1/x; 2.5 The functions y=ax; 2.6 Graph sketching using simple transformations; 2.7 The modulus function, y= x  or y=abs(x); 2.8 Symmetry of functions and their graphs; 2.9 Solving inequalities 2.10 Using graphs to find an expression for the function from experimental data 2.11 Summary; 2.12 Exercises; 3. Problem solving and the art of the convincing argument; 3.1 Introduction; 3.2 Describing a problem in mathematical language; 3.3 Propositions and predicates; 3.4 Operations on propositions and predicates; 3.5 Equivalence; 3.6 Implication; 3.7 Making sweeping statements; 3.8 Other applications of predicates; 3.9 Summary; 3.10 Exercises; 4. Boolean algebra; 4.1 Introduction; 4.2 Algebra; 4.3 Boolean algebras; 4.4 Digital circuits; 4.5 Summary; 4.6 Exercises

1.

	<ul> <li>5. Trigonometric functions and waves 5.1 Introduction; 5.2</li> <li>Trigonometric functions and radians; 5.3 Graphs and important properties; 5.4 Wave functions of time and distance; 5.5 Trigonometric identities; 5.6 Superposition; 5.7 Inverse trigonometric functions; 5.8 Solving the trigonometric equations sin x=1, cos x=a, tan x=a; 5.9</li> <li>Summary; 5.10 Exercises; 6. Differentiation; 6.1 Introduction; 6.2 The average rate of change and the gradient of a chord; 6.3 The derivative function; 6.4 Some common derivatives; 6.5 Finding the derivative of combinations of functions</li> <li>6.6 Applications of differentiation 6.7 Summary; 6.9 Exercises; 7. Integration; 7.1 Introduction; 7.2 Integration; 7.3 Finding integrals; 7.4 Applications of integration; 7.5 The definite integral; 7.6 The mean value and r.m.s. value; 7.7 Numerical Methods of Integration; 7.8 Summary; 7.9 Exercises; 8. The exponential function; 8.1 Introduction; 8.2 Exponential growth and decay; 8.3 The exponential function y=et; 8.4 The hyperbolic functions; 8.5 More differentiation and integration; 8.6 Summary; 8.7 Exercises; 9. Vectors; 9.1 Introduction; 9.2 Vectors and vector quantities</li> <li>9.3 Addition and subtraction of vectors 9.5 Application of vectors to represent waves (phasors); 9.6 Multiplication of a vector by a scalar and unit vectors; 9.7 Basis vectors; 9.8 Products of vectors; 9.9 Vector equation of a line; 9.10 Summary; 9.12 Exercises; 10. Complex numbers; 10.1 Introduction; 10.2 Phasor rotation by p/2; 10.3</li> <li>Complex numbers and operations; 10.4 Solution of quadratic equations; 10.5 Polar form of a complex number; 10.6 Applications of complex numbers to AC linear circuits; 10.7 Circular motion; 10.8 The importance of being exponential; 10.9 Summary; 10.10 Exercises</li> <li>11. Maxima and minima and sketching functions</li> </ul>
Sommario/riassunto	Mathematics for Electrical Engineering and Computing embraces many applications of modern mathematics, such as Boolean Algebra and Sets and Functions, and also teaches both discrete and continuous systems - particularly vital for Digital Signal Processing (DSP). In addition, as most modern engineers are required to study software, material suitable for Software Engineering - set theory, predicate and prepositional calculus, language and graph theory - is fully integrated into the book.Excessive technical detail and language are avoided, recognising that the real requirement for