TRIGONOMETRY

Notes, Problems and Exercises

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Key Features:

- Mathematical conciseness (a not too common feature in other books, esp. in the US)
- Range of topics(seemingly only possible in the much older, but now dated books)
- Exercises and the full solutions to the problems

Description:

This book provides a thorough, intermediate-level yet concise course in Trigonometry for use in colleges. There are 37 short chapters, each treating one specific theme and containing worked examples and easy exercises. Central to the work are the trigonometric properties of triangle ABC and its associated points. A small appendix contains some Spherical Trigonometry with interesting problems related to the earth; a larger one for enthusiastic students provides further lengthier exercises for extra practice, and full solutions are supplied in the conclusion.

Compared with other books on Trigonometry, this book covers the vast spread of topics. Especially, the author reminds readers of the historical importance of theorems enunciated by such contributors as Ptolemy, Euler, Morley, etc. Their names not only invite the readers to appreciate the beauty of these results, but also direct readers to mystery unknown.

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Contents:

- Preface
- Introduction: A Review of Some Geometrical Ideas
- Pythagoras' Theorem
- Degrees versus Radians
- Cartesian and Polar Coordinates. The Sine and Cosine Ratios
- The Cosine Rule
- Stewart's Theorem. Medians and the Centroid
- The Circumcentre, O The Sine Rule
- Area. Hero's Formula
- The Tangent Ratio
- Some Very Special Angles
- Cosecant, Secant, Cotangent. Proving Simple Identities
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- The Factorisation Formulae & Napier's Tangent Rule
- Addition Formulae for Sines & Cosines
- Addition Formulae for Tangents
- Further Half-Angle Formulae
- Solving the Equation $a \sin \theta + b \cos \theta = c$
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- Cyclic Quadrilaterals and Brahmagupta's Formula
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- The Distances OI, OH, IH
- External Angle Bisectors and the Ex-Centres Ia, Ib, Ic
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