

TABLE OF CONTENTS

PREFACE v

Part I. The Basic Slide Rule Principle: Typical Examples and Exercises

1. DIVISION, MULTIPLICATION, AND RELATED TOPICS	3
Types of Slide Rules, 3. Mechanical Principle of the Slide Rule, 4. Mathematical Principle of the Slide Rule for Division and Multiplication, 5. Recognition of Scales for Division and Multiplication, 6. Commercial Slide Rules, 7. Graduation of Scales, 7. Problems in Scale Reading, 11. Manipulation of the Slide Rule, 12. Introduction to Division, C and D Scales, 13. Decimal Point Location, 16. Division, C and D Scales, 19. Numerical Problems in Division, 21. Multiplication of Two Numbers, C and D Scales, 22. Numerical Problems in Multiplication, 26. Meaning of Accuracy; Increasing the Accuracy of Computation, 26. Continued Division and Multiplication, C and D Scales, 29. Numerical Problems in Division and Multiplication, 36. The Inverted Scale, 36. Common Factors in Division and Multiplication, 42. Folded Logarithmic Scales, 44. Summary, Chapter 1, 48. Problems on Chapter 1, 51.	
2. SIMPLE POWERS AND ROOTS	54
Theory of Scale Construction, 54. Graduation of Scales, 56. Squares, 59. Square Roots, 62. Numerical Problems on Squares and Square Roots, 67. Cubes, 67. Cube Roots, 70. Numerical Problems on Cubes and Cube Roots, 72. Other Simple Powers and Roots, 73. Equations Containing Simple Powers and Roots, 76. Summary, Chapter 2, 82. Problems on Chapter 2, 84.	
3. TRIGONOMETRIC FUNCTIONS AND CALCULATIONS	86
Principle and Arrangement of Trigonometric Scales, 86. Graduation of Scales, 88. Sines, 88. Cosines, 91. Cosecants and Secants, 92. Problems on Sines and Cosines, 92. Tangents, 93. Cotangents, 98. Problems in Tangents and Cotangents, 99. Solution of Oblique Triangles, 100. Solution of Right Triangles, 105. Trigonometric Equations, 109. Summary, Chapter 3, 111. Problems on Chapter 3, 115.	
4. LOGARITHMIC AND EXPONENTIAL CALCULATIONS	117
Properties of Exponents and Logarithms, 117. The Log Scale and Logarithms of Numbers, 119. Problems in Logarithms, 123. Powers and Roots of Numbers, 123. Problems in Powers and Roots, 126. Principle and Arrangement of LogLog Scales, 127. Logarithms of Numbers by LogLog Scales, 129. Powers and Roots of Numbers Using LogLog Scales, 131. Exponential Equations, 135. Summary, Chapter 4, 136. Problems on Chapter 4, 138.	

Part II. Applications of the Slide Rule to Various Fields

5. BUSINESS, FINANCE, AND STATISTICS	143
Division and Multiplication, 143. Simple Powers and Roots, 145. Trigonometric Calculation, 146. Logarithmic and Exponential Calculations, 147.	
6. PHYSICS AND CHEMISTRY	149
Division and Multiplication, 149. Simple Powers and Roots, 152. Trigonometric Calculation, 153. Logarithmic and Exponential Calculations, 154.	
7. ENGINEERING	157
Division and Multiplication, 157. Simple Powers and Roots, 161. Trigonometric Calculations, 166. Logarithmic and Exponential Calculations, 171.	
APPENDICES	179
Commercial Slide Rules, 181. Scale Equations, 190. Adjusting and Cleaning the Slide Rule, 192. Answers to Problems, 193.	
INDEX	199