The Slide Rule and its Use in Problem Solving, Beakley & Leach, 1969

The text consists of two sections: Part I – The Slide Rule, and Part II – The Engineering Method of Problem Solving. Each section is 68 pages long. This review will only consider Part I.

According to the Preface, the book's subject matter is presented so that it will be useful either for classroom use or individual study. The material content, vocabulary and style of presentation, and selection of exercises suggest that the text is intended for college freshman-level engineering students, although it would probably also be useful for advanced high-school students in science or pre-engineering curricula.

Part I consists of an orderly approach through the slide rule scales, discussing both their construction and uses. A full range of rule capabilities is covered, including the use of Log-Log scales, hyperbolic trig functions, and complex numbers. Practice exercises in all chapters in Part I are strictly numeric in nature, with no applied problems. Exercises in Part II are all practical or applied problems appropriate to the academic levels stated above.

No specific slide rules or manufacturers are recommended. The authors tend to use general nomenclature in discussing rule operation, but there are some specific references to the DeciLon (K&E), Versalog (Post), Maniphase Multiplex (Dietzgen), and the Model 800 ES (Pickett & Eckel). Illustrations of slide rules used in teaching examples in the text are almost exclusively generic line drawings, stressing specific scales, not an entire rule.

The text includes several appendices useful as general reference material. Appendix I (4 pages) reprises the basics of logarithms as applied to slide rules. Appendix II (4 pages) reviews basic trigonometric relationships. Appendix III (15 pages) provides an extensive listing of various mensuration formulae for 57 different geometric forms. Appendix IV (18 pages) provides a number of miscellaneous tables including; various tables of weights and measures; chemical, physical, and engineering constants; a few differentials and integrals; a 4-place log table, and a 4-place trig function table. The 4-page index is appropriate for the text.

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