

RADCLIFF & OGDEN'S

CALCULATION OF DRUG DOSAGES

An Interactive Workbook

SIXTH EDITION

Sheila J. Ogden



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Sheila J. Ogden, RN, MSN

Clinical Manager
Clarian Health—Indiana University
Indianapolis, Indiana

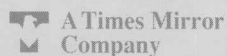


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SIXTH EDITION

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To
my children—John, Amy, and Justin—
for your patience and understanding
and

To
David—my husband, best friend, and love—
for his ever constant support, without which the project
could not have been completed.
S.J.O.

Reviewers

Teri Boese, MSN, RN

Learning Resource Services Coordinator
College of Nursing
University of Iowa
Iowa City, Iowa

Jean Park Brown, MS, RN, C

Clinical Nurse Specialist
Shriners Hospitals for Children
Greenville, South Carolina

Laura Clayton, RN, MSN

Assistant Professor of Nursing Education
Shepherd College
Shepherdstown, West Virginia

Joan LaRue, RN, BSN, MN

Instructor/Supervisor
Mary Grimes School of Nursing
Neosho County Community College
Chanute, Kansas

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Director of Nursing Education
St. Louis College of Health Careers
St. Louis, Missouri

Patricia P. Wickham, RN, MSN

Instructor
Practical Nursing Program
Center for Arts and Technology
Brandywine Campus
Coatesville, Pennsylvania

原版

Preface

This workbook was designed for students in professional and vocational schools of nursing and for nurses returning to practice after being away from the clinical setting. It can be used in the classroom or for individual study. The workbook contains an extensive review of basic mathematics to assist students who have not mastered the subject in previous educational experiences. It can also be used for those who have not attended school for a number of years and feel deficient in mathematics. It may be that a person has not needed mathematics. Today we are very dependent on modern technology; a calculator is used in most activities involving numbers.

To become skilled in mathematics, extensive practice is necessary. Each chapter begins with a pretest for evaluating present skills. Learning objectives are listed so the student will know the goals that must be achieved, the subject matter is introduced, and examples for solving the various types of problems are provided. Work sheets give the student an opportunity to practice solving realistic problems. Two tests evaluate the student's learning. The student skilled in mathematics can easily adapt to applying the skills to solving problems of drug dosages.

The sixth edition of this workbook retains many important features of the fifth edition such as the mathematics pretest and posttest in Part I.

Part II continues to begin with use of the metric system that is predominant in the medical field. The apothecaries' system is still used and must also be learned. These chapters remain separate because each system must be learned separately before it can be manipulated in conversions.

Part III emphasizes interpretation of the physician's orders and how to read drug labels. The actual number of drug label reprints has been increased in all of the chapters dealing with the calculation of drug dosages. Dosages measured in units and intravenous flow rates have been expanded. The chapter on pediatric dosages includes calculations related to body surface area. Two new chapters have been added. Chapter 15 covers a new method of performing calculation of drug dosages. Chapter 16 introduces the use of the automated drug dispensing system. With the aging of the general population as a concern, the chapter on special considerations for the elderly has been enhanced. Further the home care considerations chapter has been expanded and chapters have been added on dimensional analysis and automated medication dispensing systems. All problems relating to drug dosages continue to represent actual physicians' orders in various health care settings in Indianapolis, Indiana.

In conclusion, a comprehensive posttest has been provided for the student. The questions asked help the student assess total learning of the process of calculation of drug dosages. A Glossary has been included to define important terms.

I want to thank the following pharmaceutical companies that have allowed us to use their medication labels in the book to provide a more realistic representation of medication administration.

Adria Laboratories (Erbamont Inc.)
Beecham (SmithKline Beecham Pharmaceuticals)
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Wyeth-Ayerst Laboratories (American Home Products Corporation)

I appreciate the physicians, nurses, pharmacists, and representatives of various health care agencies who took time to discuss topics with me. I am grateful to my students, from whom I have learned so much. They have helped me understand the problems students have with basic mathematics as well as with the calculation of drug dosages. I hope this book will provide its readers with a feeling of confidence when working with a variety of mathematical problems.

Sheila J. Ogden

Introduction

The purpose of this book is to provide the student in a school of nursing with a systematic review of mathematics and a simplified method of calculating drug dosages.

To attain the maximum benefit from this workbook, begin at the beginning and work through the book in the order presented. Extensive practice is essential for mastery of mathematics.

Each chapter in Parts I and II begins with a pretest to evaluate previous learning. If the grade on the pretest is acceptable (an acceptable score is noted at the top of the test), you may continue to the pretest in the next chapter. If the score on the pretest indicates a need for further study, read the introduction to the chapter, study the method of solving the problems, and complete the work sheet. If you have difficulty with a problem, refer to the examples in the introduction.

On completion of the work sheet, refer to the Answer Key to verify that the answers are correct. Rework all the incorrect problems to find the error. It may be necessary to refer again to the examples in each chapter. Take posttest 1, and grade the test. If the grade is acceptable, as indicated at the top of the test, continue to the next chapter. If the grade is less than acceptable, rework all incorrect problems to find the error. Review as necessary before completing posttest 2. Again verify that your answers are correct. At this point, if you have followed the system of study, the grade on the second posttest should be more than acceptable. Follow the same system of study in each of the following chapters.

When all the chapters in the workbook are completed with acceptable scores (between 90% and 100%), you should be proficient in solving problems relating to drug dosage; more importantly, you will have completed the first step toward becoming a safe practitioner of medication administration.

On completion of the materials provided in this workbook, you will have mastered the following mathematical concepts for the accurate performance of computations:

1. Solve problems using fractions, decimals, percents, ratios, and proportions
2. Solve problems involving the apothecaries', metric, and household systems of measurements
3. Solve problems measured in units and milliequivalents
4. Solve problems related to oral and parenteral dosages
5. Solve problems involving intravenous flow rates
6. Solve problems confirming the correct dosage of pediatric medications
7. Solve problems by use of the dimensional analysis method

You are now ready to begin Chapter 1.

Detailed Contents

PART I REVIEW OF MATHEMATICS

Mathematics Pretest, 3

CHAPTER 1 FRACTIONS, 9

Pretest, 9

Learning objectives, 13

Changing an improper fraction to a mixed number, 14

Changing a mixed number to an improper fraction, 14

Lowest common denominator, 15

Changing a fraction to an equivalent fraction with the lowest common denominator, 15

Changing a mixed number to an equivalent fraction with the lowest common denominator, 15

Addition of fractions, 17

Addition of fractions having the same denominator, 17

Addition of fractions with unlike denominators, 17

Addition of fractions involving whole numbers and unlike denominators, 18

Subtraction of fractions, 19

Subtraction of fractions having the same denominators, 19

Subtraction of fractions with unlike denominators, 19

Subtraction of fractions involving whole numbers and unlike denominators, 20

Multiplication of fractions, 21

Multiplication of mixed numbers, 22

Division of fractions, 22

Division of mixed numbers, 23

Reduction of a complex fraction, 23

Reduction of a complex fraction with mixed numbers, 23

Work Sheet, 25

Posttest 1, 33

Posttest 2, 37

CHAPTER 2 DECIMALS, 41

Pretest, 41

Learning objectives, 45

Reading decimal numbers, 46

Determining the values of decimal fractions, 46

Addition and subtraction of decimals, 47

Multiplication of decimals, 47

Multiplying a decimal by 10 or a power of 10 (100, 1000, 10,000, 100,000), 48

Multiplying a whole number or decimal by 0.1 or a multiple of 0.1 (0.01, 0.001, 0.0001, or 0.00001), 48

Rounding a decimal fraction, 48

Division of decimals, 49

Dividing a decimal by 10 or a multiple of 10 (100, 1000, 10,000, 100,000), 49

Dividing a whole number or a decimal fraction by 0.1 or a multiple of 0.1 (0.01, 0.001, 0.0001, 0.00001), 50

Conversion, 50

Converting a decimal fraction to a proper fraction, 50

Converting a proper fraction to a decimal fraction, 50

Work Sheet, 51

Posttest 1, 61

Posttest 2, 65

CHAPTER 3 PERCENTS, 69

Pretest, 69

Learning objectives, 73

Changing a fraction to a percent, 73

Changing a decimal to a percent, 74

Changing a percent to a fraction, 74

Changing a percent to a decimal, 74

Changing a percent containing a fraction to a decimal, 75

Finding what percent one number is of another, 75

Finding the given percent of a number, 76

Work Sheet, 77

Posttest 1, 85

Posttest 2, 89

CHAPTER 4 RATIOS, 93

Pretest, 93

Learning objectives, 95

Changing a proper fraction to a ratio reduced to lowest terms, 95

Changing a decimal fraction to a ratio reduced to lowest terms, 96

Changing a percent to a ratio reduced to lowest terms, 96

Changing a ratio to a proper fraction reduced to lowest terms, 97

Changing a ratio to a decimal fraction, 97

Changing a ratio to a percent, 98

Work Sheet, 99

Posttest 1, 109

Posttest 2, 111

CHAPTER 5 PROPORTIONS, 113

Pretest, 113

Learning objectives, 115

Solving a simple proportion problem, 115

Proportion problem involving whole numbers, 116

Proportion problem involving fractions, 116

Proportion problem involving decimals, 116

Proportion problem involving fractions and percents, 117

Proportion problem involving decimals and percents, 117

Proportion problem involving numerous zeros, 118

Work Sheet, 119

Posttest 1, 125

Posttest 2, 127

Mathematics Posttest, 129

**PART II UNITS AND MEASUREMENTS
FOR THE CALCULATION OF DRUG DOSAGES****CHAPTER 6 METRIC AND HOUSEHOLD MEASUREMENTS, 137**

Pretest, 137

Learning objectives, 141

Metric measurements, 141

Household measurements, 143

Work Sheet, 145

Posttest 1, 149

Posttest 2, 151

**CHAPTER 7 APOTHECARIES' AND HOUSEHOLD
MEASUREMENTS, 153**

Pretest, 153

Learning objectives, 155

Addition of Roman numerals, 156

Subtraction of Roman numerals, 156

Apothecaries' measurements, 156

Household measurements, 158

Work Sheet, 161

Posttest 1, 163

Posttest 2, 165

**CHAPTER 8 EQUIVALENTS BETWEEN APOTHECARIES'
AND METRIC MEASUREMENTS, 167**

Pretest, 167

Learning objectives, 169

Approximate equivalents between apothecaries' and metric measurements, 169

Approximate equivalents between Celsius and Fahrenheit measurements, 172

Work Sheet, 175

Posttest 1, 179

Posttest 2, 181

PART III CALCULATION OF DRUG DOSAGES

CHAPTER 9 INTERPRETATION OF THE PHYSICIAN'S ORDERS, 185

- Learning objectives, 185
- Written orders, 185
- Verbal orders, 185
- Scheduling the administration of medications, 186
- Introduction to drug dosages, 187
- The five rights of medication administration, 188
- Posttest, 191

CHAPTER 10 HOW TO READ DRUG LABELS, 193

- Learning objectives, 193
- Parts of a drug label, 193
- Examples of reading drug labels, 194
- Posttest 1, 197
- Posttest 2, 199

CHAPTER 11 ORAL DOSAGES, 201

- Learning objectives, 201
- Oral dosages involving capsules and tablets, 204
- Oral dosages involving liquids, 206
- Oral dosages involving milliequivalents, 208
- Alternative formula method of oral drug dosage calculation, 208
- Formula involving liquids, 210
- Work Sheet, 213
- Posttest 1, 241
- Posttest 2, 247

CHAPTER 12 PARENTERAL DOSAGES, 253

- Learning objectives, 253
- Syringes, 259
- Calculation of parenteral drug dosages, 261
- Alternative formula method of parenteral drug dosage calculation, 263
- Work Sheet, 267
- Posttest 1, 293
- Posttest 2, 299

CHAPTER 13 DOSAGES MEASURED IN UNITS, 305

- Learning objectives, 305
- Powder reconstitution, 306
- Dosages measured in units involving oral and parenteral medications, 307
- Dosages measured in units involving parenteral medications, 308
- Insulin given with a Lo-Dose insulin syringe, 308
- Mixed insulin administration, 308
- Regular insulin given with another type of insulin in the same U-100 syringe, 309
- Work Sheet, 311
- Posttest 1, 317
- Posttest 2, 321

CHAPTER 14 INTRAVENOUS FLOW RATES, 327

- Learning objectives, 327
- Critical care I.V. medications and flow rates, 334
- I.V. administration of regular insulin and heparin, 335
- I.V. administration of medication per kilogram per minute, 337
- I.V. piggybacks, 338
- Heparin locks, 338
- Central venous catheter, 339
- Patient-controlled analgesia, 340
- Work Sheet, 343
- Posttest 1, 349
- Posttest 2, 353

CHAPTER 15 DIMENSIONAL ANALYSIS AND THE CALCULATION OF DRUG DOSAGES, 357

- Learning objectives, 357
- Work Sheet, 361

CHAPTER 16 AUTOMATED MEDICATION DISPENSING SYSTEMS, 363

- Learning objectives, 363

CHAPTER 17 PEDIATRIC DOSAGES, 367

- Learning objectives, 367
- Pediatric dosages calculated by mg/kg/h., 367
- Body surface area calculations, 369
- Calculation of dosage based on body surface area, 370
- Work Sheet, 373
- Posttest 1, 377
- Posttest 2, 379

CHAPTER 18 SPECIAL CONSIDERATIONS FOR THE ELDERLY, 381

- Learning objectives, 381
- Changes experienced by the elderly, 381
- Problems of the elderly, 382
- Medical alert system, 383
- Medications for the elderly in the home, 383
- The visiting nurse, 384
- Medication errors with the elderly, 384
- Medication for the elderly in the hospital, 385

CHAPTER 19 HOME CARE CONSIDERATIONS, 387

- Learning objectives, 387
- Home health nursing, 387
- I.V. therapy in the home, 389
 - Central venous catheter, 389
 - Peripherally inserted central catheter, 390
 - Implantable venous access devices, or ports, 390
 - Landmark midline venous access device, 391
 - Implications for home care nursing, 391

COMPREHENSIVE POSTTEST, 393**GLOSSARY, 409****ANSWER KEY, 411**

Part I Review of Mathematics

Chapters

- 1 Fractions
- 2 Decimals
- 3 Percents
- 4 Ratios
- 5 Proportions

PRETEST

Name _____

Date _____

ACCEPTABLE SCORE 68

YOUR SCORE _____

Directions: Add and reduce fractions to lowest terms.

1. $\frac{3}{8} + \frac{1}{3} =$ _____

2. $2\frac{3}{7} + 1\frac{2}{3} =$ _____

3. $\frac{4}{5} + \frac{5}{9} =$ _____

4. $1\frac{3}{5} + \frac{7}{8} \div \frac{1}{3} =$ _____

Directions: Add the following decimal fractions.

5. $1.03 + 2.2 + 1.134 =$ _____

6. $30.962 + 0.57 + 2.3 =$ _____

7. $6.88 + 4.5 + 1.678 =$ _____

8. $1.479 + 28.68 + 4.5 =$ _____