TABLE OF CONTENTS – Medical Mathematics and Dosage Calculations for Veterinary Technicians, 3rd Edition

Section I Review of Math Fundamentals

- 1 Math Fundamentals: Self-assessment
- Self-assessment Exercises
- 2 Review of Key Medical Math Fundamentals: Decimals
- 2.1 Relative Values of Decimal Numbers
- 2.2 Properly Communicating Decimal Numbers
- 2.3 The Rules for the Use of Zero in Decimal Numbers
- 2.4 Comparing Decimals Which Number Is Larger?
- 2.5 A Quick Guide to Using Scientific Notation
- 2.6 Tips for Adding and Subtracting Decimal Numbers
- 2.7 Tips for Multiplying Decimal Numbers
- 2.8 Tips for Dividing Decimal Numbers
- 2.9 Accurately Rounding Decimal Numbers
- 2.10 Chapter 2 Practice Problems

3 Review of Key Math Fundamentals: Fractions

- 3.1 Fundamentals of Working with Medical Math Fractions
- 3.2 Working with Improper Fractions, Proper Fractions, and Mixed Numbers
- 3.3 Equivalent Fractions in Medical Math
- 3.4 Simplifying or Reducing Fractions
- 3.5 Adding Fractions in Medical Math
- 3.6 Subtracting Fractions in Medical Math
- 3.7 Multiplying Fractions in Medical Math

- 3.8 Dividing Fractions in Medical Math
- 3.9 Conversion between Fractions and Decimals
- 3.10 Rounding Fractions in Medical Math
- 3.11 Chapter 3 Practice Problems

4 Review of Key Math Fundamentals: Percentages

- 4.1 Conversion of Percentages to Fractions
- 4.2 Conversion between Percentages and Decimal Numbers
- 4.3 Conversion of Fractions to Percentages
- 4.4 Finding Percentages of a Whole
- 4.5 Subtracting or Adding the Percentage Fraction of the Whole
- 4.6 Determining Percentages Represented by the Fractional Component
- 4.7 Chapter 4 Practice Problems

5 Review of Key Math Fundamentals: Finding the Unknown X

- 5.1 Analyzing the Problem and Setting up the Equation
- 5.2 Addition: Moving Numbers to the Other Side of the Equation
- 5.3 Subtraction: Moving Negative Numbers or a Negative UnknownX
- 5.4 Finding the Unknown X in Multiplication Problems
- 5.5 When the Unknown X is in the Denominator
- 5.6 Finding the Unknown X in Division Problems
- 5.7 Unknown X Involving Division of Fractions
- 5.8 Chapter 5 Practice Problems

Section II Understanding Units and Labels

6 Measurements Used in Veterinary Medicine

- 6.1 Metric Units: The Basics
- 6.2 Metric Units of Weight and Mass

- 6.3 Metric Units of Volume
- 6.4 Metric Units of Length
- 6.5 Metric Units of Concentration and Density
- 6.6 Nonmetric Units: Household, Apothecary, and Avoirdupois Units
- 6.7 Conversion between Quantities of Volume and Mass: Special Cases
- 6.8 Converting Between Units: The Proportion and Cancel-Out Methods
- 6.8.1 Using the Proportion Method
- 6.8.2 Using the Cancel-out Method
- 6.9 Estimating the Answer: Does Your Answer Make Sense?
- 6.10 Chapter 6 Practice Problems

7 Understanding Drug Orders and Drug Labels

- 7.1 The Dosage Regimen
- 7.1.1 The Dosage Regimen: Doses and Dosages
- 7.1.2 The Dosage Regimen: The Route of Administration 100
- 7.1.3 The Dosage Regimen: The Dose Interval 102
- 7.2 The Dosage Form
- 7.3 The Best Practices for Writing Drug Orders
- 7.3.1 Handling Unclear Drug Orders
- 7.4 Understanding the Drug Label: The Drug Names
- 7.5 Understanding the Drug Label: Concentrations and Dosage Forms
- 7.6 Understanding the Drug Label: Regulatory Label Information
- 7.6.1 Controlled Substances and Prescription Labeling
- 7.6.2 Prescription, Legend, and Over-The-Counter Label Indicators
- 7.7 Understanding the Drug Label: Hazards, Storage, and Expiration Dates
- 7.7.1 Storage Information on the Label

7.7.2 Expiration Dates

7.8 Chapter 7 Practice Problems

Section III Dose Calculations

8 Basic Dose Calculations

8.1 The Basic Steps in Dose Calculation

8.2 Converting the Animal's Weight into the Units Needed to Calculate the Dose

8.3 Determining the Dose for the Patient

8.4 Determining the Amount of Dose Forms Needed per Dose

8.5 Determining the Number of Dosage Forms Needed to Complete the Dosage Regimen

8.5.1 The Most Common Mistake Made when Determining the Total Number of Units to Be Dispensed

- 8.6 Determining the Cost for Dispensed Medication
- 8.7 Using a Syringe with Liquid Dosage Formulations
- 8.7.1 Syringes in Veterinary Medicine
- 8.7.2 Measuring Fluid within the Syringe 131
- 8.8 Chapter 8 Practice Problems 132

9 Intravenous Infusion Calculations

- 9.1 Performing IV Infusions and the Use of IV Administration Sets
- 9.2 The Basics of Setting IV Fluid Rate Using the Drip Chamber
- 9.3 Setting the IV Fluid Rate: Constant Rate Infusions (CRI)
- 9.4 Calculating Infusion Rates when Adding Drugs to IV Fluids
- 9.5 Calculating Standard IV Fluid Rates
- 9.6 Calculating IV Fluid Rate Stop Times
- 9.7 Chapter 9 Practice Problems

Section IV Other Calculations Used in Veterinary Medicine

10 Ratios, Proportions, and Dilutions

- 10.1 Ratios and Proportions
- 10.2 The Basics of Making a Dilution
- 10.3 Making Serial Dilutions
- 10.4 Calculating Diluent Needed to Deliver a Specific Dose or Drug Concentration
- 10.5 Calculating Dilutions Using the V1 \times C1 = V2 \times C2 Formula
- **10.6 Diluting Percent Solutions**
- 10.7 Diluting Solutions Expressed as Ratios
- 10.8 Making Dilutions with Mixed Types of Concentrations
- 10.9 Chapter 10 Practice Problems

11 Additional Calculations Used by Veterinary Professionals

- 11.1 Mean, Median, Mode, and Range
- 11.2 Converting between Fahrenheit and Celsius
- 11.3 Roman Numerals
- 11.4 Chapter 11 Practice Problems

Appendix: Answers to Practice Problems

Index.