

dimensional analysis nursing

Mastering Dimensional Analysis in Nursing: A Comprehensive Guide

Introduction:

Are you a nursing student struggling with medication calculations? Do complex drug dosages leave you feeling overwhelmed and anxious? Fear not! This comprehensive guide will demystify dimensional analysis, a powerful problem-solving technique essential for safe and accurate medication administration in nursing. We'll break down the process step-by-step, providing practical examples and tips to boost your confidence and ensure patient safety. This post offers a deep dive into dimensional analysis, covering everything from the fundamental principles to advanced applications, making it your ultimate resource for mastering this crucial skill.

What is Dimensional Analysis?

Dimensional analysis, also known as the factor-label method or unit cancellation, is a systematic approach to solving problems involving conversions between units of measurement. In nursing, it's the gold standard for calculating medication dosages, IV flow rates, and other essential parameters. It leverages the fact that units can be treated like algebraic variables, allowing us to cancel out unwanted units and arrive at the desired unit. This approach minimizes errors and ensures accuracy, a critical aspect of safe patient care.

Step-by-Step Guide to Dimensional Analysis in Nursing:

1. Understanding the Problem:

Before diving into calculations, carefully read the problem and identify the known quantities (what you are given) and the desired quantity (what you need to find). For instance, you might be given a medication order for 500mg of a drug and need to calculate how many milliliters (mL) to administer, given that the drug concentration is 250mg/5mL.

1. Setting up the Equation:

The core of dimensional analysis lies in setting up a chain of fractions. Begin with the known quantity and its unit. Then, strategically place conversion factors (ratios equal to 1) to cancel out unwanted units and arrive at the desired unit. Each conversion factor should have the unit you want to cancel in the denominator and the unit you want to obtain in the numerator.

Example:

Let's say we need to administer 500mg of a drug, and the concentration is 250mg/5mL.

We start with: 500 mg

We want to end with: mL

Our conversion factor is: 5 mL / 250 mg (this ratio equals 1 because 5 mL IS 250mg)

Therefore, the equation becomes:

$$500 \text{ mg} \times (5 \text{ mL} / 250 \text{ mg}) = ? \text{ mL}$$

Notice how "mg" cancels out, leaving us with "mL."

1. Performing the Calculation:

Once the equation is set up correctly, perform the arithmetic. In our example:

$$(500 \times 5) / 250 = 10 \text{ mL}$$

1. Checking Your Work:

Always double-check your answer. Does the answer make sense in the context of the problem? Is the unit correct? Are the numbers realistic? This step is crucial for preventing medication errors.

Advanced Applications of Dimensional Analysis in Nursing:

Dimensional analysis isn't just for simple medication calculations; it's applicable to a wide range of nursing scenarios:

IV Flow Rates: Calculating the drip rate (drops per minute) for intravenous infusions.

Infusion Pumps: Determining the appropriate infusion pump settings for various medications.

Medication Conversions: Converting between different units of measurement (e.g., grams to milligrams, kilograms to pounds).

Body Surface Area (BSA) Calculations: Calculating dosages based on a patient's BSA, which is particularly crucial for pediatric patients.

Infusion Time Calculations: Calculating the total infusion time based on the volume and flow rate of an intravenous solution.

Common Pitfalls to Avoid:

Incorrect Conversion Factors: Using the wrong conversion factor is a common source of error. Always double-check your conversion factors to ensure accuracy.

Unit Errors: Failing to cancel out units correctly can lead to incorrect results. Pay close attention to unit cancellation.

Mathematical Errors: Simple arithmetic mistakes can invalidate your calculation. Use a calculator and double-check your work.

Tips for Mastering Dimensional Analysis:

Practice Regularly: The more you practice, the more comfortable and confident you'll become.

Seek Feedback: Ask instructors or colleagues to review your calculations.

Use Visual Aids: Diagrams and flowcharts can help visualize the problem-solving process.

Utilize Online Resources: Many online calculators and tutorials are available to assist you.

Conclusion:

Dimensional analysis is an indispensable tool for nurses. Mastering this technique not only enhances your clinical skills but also contributes to patient safety. By following the steps outlined in this guide and practicing regularly, you can build confidence and accuracy in your medication calculations. Remember, accuracy is paramount in nursing, and dimensional analysis provides a structured pathway to achieve it.

Sample Curriculum Outline: Dimensional Analysis in Nursing

Course Title: Mastering Medication Calculations: A Dimensional Analysis Approach

Course Description: This course provides a comprehensive understanding of dimensional analysis and its application to medication calculations in nursing. Students will develop proficiency in solving a wide range of medication dosage problems, including IV flow rate calculations and BSA-based calculations. Emphasis is

placed on accuracy and patient safety.

Course Outline:

Module 1: Introduction to Dimensional Analysis: Definition, principles, and advantages of using dimensional analysis in nursing.

Module 2: Basic Medication Calculations: Step-by-step guide to solving basic medication dosage problems using dimensional analysis. Practice problems and case studies are included.

Module 3: Advanced Medication Calculations: Solving complex medication dosage problems involving IV flow rates, infusion pump settings, and medication conversions.

Module 4: Body Surface Area (BSA) Calculations: Understanding BSA and its application in medication calculations, particularly for pediatric patients.

Module 5: Error Prevention and Quality Assurance: Strategies for avoiding common errors in medication calculations and maintaining accuracy.

Module 6: Practice Exam: A comprehensive exam to assess student understanding and competency in dimensional analysis.

Article Explaining Each Point of the Outline:

Each module listed above would comprise a separate, detailed article explaining the topic in depth. For example, Module 2 ("Basic Medication Calculations") would contain numerous examples and step-by-step solutions to different medication dosage problems, showing the application of dimensional analysis in various clinical settings. Similarly, Module 3 would expand on more complex scenarios, such as calculating IV flow rates using different types of tubing and infusion sets. Module 4 would provide a comprehensive guide to BSA calculation methods and their implementation in medication dosage adjustments. Module 5 would explore common calculation mistakes and strategies to prevent them, such as using visual aids and double-checking work.

FAQs:

1. What is the difference between dimensional analysis and other calculation methods? Dimensional analysis provides a systematic approach that reduces the risk of errors by visually tracking units, unlike other methods which may rely more on memorization of formulas.
1. Can dimensional analysis be used for all medication calculations? Yes, it's applicable to almost all medication dosage calculations and related problems.

1. What are some common mistakes students make when using dimensional analysis? Incorrect conversion factors, unit errors, and simple arithmetic mistakes are common pitfalls.

1. How can I improve my accuracy in dimensional analysis? Practice regularly, double-check your work, use visual aids, and seek feedback from others.

1. Are there any online resources available to help me learn dimensional analysis? Yes, many websites and online calculators offer tutorials and practice problems.

1. Is dimensional analysis only used in nursing? No, it's a general problem-solving technique used in various fields involving unit conversions.

1. How important is accuracy in medication calculations? Accuracy is paramount in nursing as medication errors can have severe consequences for patient safety.

1. What if I get a strange or unrealistic answer using dimensional analysis? Always re-check your calculations and ensure you've used the correct conversion factors and units.

1. Can I use dimensional analysis to calculate other things besides medication dosages? Yes, it can be used for other conversions such as temperature, weight, length etc.

Related Articles:

1. Medication Dosage Calculations for Nurses: A general overview of various medication calculation methods, including dimensional analysis.
1. IV Flow Rate Calculations: A focused guide on calculating IV flow rates using different tubing and infusion pump settings.
1. Pediatric Medication Dosage Calculations: Specific considerations for pediatric patients and dosage adjustments based on weight or BSA.
1. Understanding Medication Orders: A guide to interpreting medication orders and identifying crucial information for calculation.
1. Preventing Medication Errors in Nursing: Strategies for reducing medication errors through proper calculation and administration techniques.
1. Common Medication Errors and Their Causes: Analyzing common errors in medication calculations and their underlying reasons.
1. The Role of Technology in Medication Calculations: Exploring the use of medication calculation software and apps in nursing practice.
1. Body Surface Area (BSA) Calculations in Practice: Practical applications of BSA calculations in different clinical scenarios.

1. Advanced Infusion Therapy Calculations: Advanced calculations involving different infusion types and complex medication regimens.

dimensional analysis nursing: The Nurse, The Math, The Meds - E-Book Joyce L. Mulholland, 2014-04-14 Use the simplicity of the dimensional analysis method to minimize drug calculation errors! The Nurse, The Math, The Meds, 2nd Edition helps you overcome any math anxiety you may have by clearly explaining how to use the dimensional analysis method. It shows how to analyze practice problems, find the reasonable answer, and then evaluate it. But first, it lets you refresh your math skills with a review of essential math. Written by noted nursing educator Joyce Mulholland, this book offers over 1,400 questions for plenty of practice in mastering math concepts and learning dosage calculations. A comprehensive math review at the beginning of the book includes a self-assessment test to help you identify areas of strength and weakness. A consistent chapter format includes objectives, essential prior knowledge, equipment needed, estimated time to complete the chapter, key vocabulary, and more. Rapid Practice exercises follow each new topic with multiple practice problems, so you can apply concepts immediately. A full-color design includes a special margin section so you can work out practice problems on the spot. Mnemonics make memorization easier and save time in learning. Test tips enhance your comprehension and improve test-taking skills and comfort level. Red arrow alerts call attention to critical math concepts and patient safety theory. Clinical Relevance boxes help you apply medication-related concepts to practice. Unique! FAQ and Answers are derived from students' actual classroom questions, and are especially useful if you are studying outside of a classroom environment. Unique! Ask Yourself questions help in synthesizing information and reinforcing understanding. Unique! Communication boxes include sample nurse-patient and nurse-prescriber dialogues that illustrate clinical application of medication administration. Cultural boxes describe selected math notation and medication-related cultural practices. TJC and ISMP recommendations for abbreviations, acronyms, and symbols are used to reduce medication errors, increase patient safety, and ensure compliance with agency regulations. Online and print references provide opportunities for further research and study. Two chapter finals are included at the end of each chapter. Two comprehensive finals evaluate your understanding, one in NCLEX® exam-style multiple-choice format and the other following a traditional written format. Answer key in the back of the book provides step-by-step solutions to the Rapid Practice exercises, chapter finals, and comprehensive finals so you can pinpoint specific areas for further review.

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Basic skills pre-test End-of-section practice tests in each chapter End-of-unit assessment tests End-of-book post-test 18 Speed Challenge chapter quizzes online to increase speed and accuracy Real-life scenarios that illustrate how to apply concepts to practice Note and Alert boxes that highlight potential safety issues to keep in mind when calculating math problems A glossary of key terms at the beginning of each chapter

dimensional analysis nursing: Dosage Calculations Made Incredibly Easy! Springhouse, 2002 This entertaining guide is now more fun, more up-to-date, and even easier to use -- an indispensable resource for nurses who want to take the stress out of dosage calculations. New to this edition are a chapter on dimensional analysis; numerous lighthearted learning aids called Cheat Sheets; and Practice Makes Perfect -- case study questions and answers that let nurses assess their progress. Contents include math basics; measurement systems; drug orders and administration records; calculating oral, topical, and rectal drug dosages; calculating parenteral injections and I.V. infusions; and calculating pediatric, obstetric, and critical care dosages.

dimensional analysis nursing: *The Nurse, the Math, the Meds* Joyce L. Mulholland, Joyce M. Mulholland, 2006-10 This text emphasizes the simplicity of the dimensional analysis method to help even those students with math anxiety minimize or eliminate medication calculation errors. It begins with a comprehensive review of general math skills and an explanation of basic dimensional analysis methodology. The book focuses on the analysis and setup of practice problems, formulation of a reasonable answer, and evaluation of the answer. This one-of-a-kind text is designed for nursing students at all levels, including graduate nurses and practicing nurses who want a refresher. It is an appropriate text selection for agency in-service programs as well as for physician assistant medication math courses. A companion CD-ROM packaged with the text offers additional practice problems. A self-assessment test precedes the comprehensive math review in Chapter 1, promoting a strong math foundation. Chapter 2 introduces the dimensional analysis method and includes several basic practice problems, facilitating consistent application of the method throughout the text. The analysis and setup of practice problems increases comprehension, reduces errors, and complements use of the dimensional analysis method. To help reduce medication errors, the text follows JCAHO and ISMP recommendations regarding avoidance of ambiguous abbreviations, acronyms, and symbols. Each chapter begins with a quick overview of chapter contents to orient students as they prepare to read and study the material. The text's full-color design includes a special margin section in which students can work out practice problems on the spot. Rapid Practice exercises follow each main concept, allowing students to review even when their study time is limited or frequently interrupted. Test Tips enhance comprehension and improve students' test-taking skills and comfort level. Selected Mnemonics are supplied to facilitate memorization and conserve learning time. Red Arrow Alerts call attention to critical math concepts and patient-safety theory as well as to key nursing practice issues. FAQs and Answers are derived from students' actual classroom questions. They are particularly helpful to students who are studying outside of a traditional classroom environment. Ask Yourself questions help students comprehend and synthesize content. Communication boxes, which present sample nurse-patient and nurse-prescriber dialogues, illustrate clinical applications of medication administration. Cultural boxes describe selected math-notation and medication-related cultural practices. Clinical Relevance boxes show how abstract concepts, such as legal issues, apply to everyday clinical practice. Website addresses and other useful references are provided where applicable. Two chapter finals are included at the end of each chapter, one multiple-choice format and one traditional format, with answers provided in the back of the book. Two comprehensive finals, one using an NCLEX examination-style multiple-choice format and one following a traditional format, test the major concepts covered in the text and offer an opportunity for additional practice. An answer key in the back of the book contains step-by-step solutions to the Rapid Practice exercises, chapter finals, and comprehensive text finals, allowing the student to pinpoint specific areas for further review.

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easier than ever with this easy-to-use skill-building guide. Clinical Calculations Made Easy equips you to confidently calculate accurate medication dosages with a review of basic math skills and measurement systems, as well as a systematic approach to drug calculations/preparations using the proven dimensional analysis method. Examples guide you step by step through solving common problems. Thinking it Through insights coach you in thinking critically to solve complex problems. In-Chapter Exercises help you hone new skills. Practice Problems test your retention and challenge you to apply what you've learned. Answer Keys at the end of each chapter provide instant feedback and remediation. Two Removable Post-Tests offer a comprehensive evaluation of your understanding. Drug Labels with related problems familiarize you with information sources you'll reference regularly in practice. Preventing Medication Errors help you avoid common dosage calculation mistakes. Pediatric Medication Icon alerts you to potential problems you may encounter specific to pediatric care.

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Dimensional analysis of medications.

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Joyce L. Mulholland, Joyce M. Mulholland, Susan Turner, 2011-02-14 This is a Pageburst digital textbook; the product description may vary from the print textbook. Use the simplicity of the dimensional analysis method to minimize drug calculation errors! The Nurse, The Math, The Meds, 2nd Edition helps you overcome any math anxiety you may have by clearly explaining how to use the dimensional analysis method. It shows how to analyze practice problems, find the reasonable answer, and then evaluate it. But first, it lets you refresh your math skills with a review of essential math. Written by noted nursing educator Joyce Mulholland, this book offers over 1,400 questions for plenty of practice in mastering math concepts and learning dosage calculations. A comprehensive math review at the beginning of the book includes a self-assessment test to help you identify areas of strength and weakness. A consistent chapter format includes objectives, essential prior knowledge, equipment needed, estimated time to complete the chapter, key vocabulary, and more. Rapid Practice exercises follow each new topic with multiple practice problems, so you can apply concepts immediately. A full-color design includes a special margin section so you can work out practice problems on the spot. Mnemonics make memorization easier and save time in learning. Test tips enhance your comprehension and improve test-taking skills and comfort level. Red arrow alerts call attention to critical math concepts and patient safety theory. Clinical Relevance boxes help you apply medication-related concepts to practice. Unique! FAQ and Answers are derived from students' actual classroom questions, and are especially useful if you are studying outside of a classroom environment. Unique! Ask Yourself questions help in synthesizing information and reinforcing understanding. Unique! Communication boxes include sample nurse-patient and nurse-prescriber dialogues that illustrate clinical application of medication administration. Cultural boxes describe selected math notation and medication-related cultural practices. TJC and ISMP recommendations for abbreviations, acronyms, and symbols are used to reduce medication errors, increase patient safety, and ensure compliance with agency regulations. Online and print references provide opportunities for further research and study. Two chapter finals are included at the end of each chapter. Two comprehensive finals evaluate your understanding, one in NCLEX® exam-style multiple-choice format and the other following a traditional written format. Answer key in the back of the book provides step-by-step solutions to the Rapid Practice exercises, chapter finals, and comprehensive finals so you can pinpoint specific areas for further review. A red flag icon calls attention to high-risk medications. Updated trends in safer medication administration help in reducing sentinel events and adverse drug events. Practice problems are more clinically relevant and organized from simple to complex. Additional clinical relevance, communication, and cultural boxes help prevent errors by offering a variety of examples from clinical practice. Updated content includes: More realistic fraction and decimal problems Expanded Total Parenteral Nutrition (TPN) section with a typical order, common errors, and current guidelines to reduce errors Updated coverage of pediatric medication

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dimensional analysis nursing: Dosage Calculations Anthony Giangrasso, Dolores Shrimpton, 2017-09-26 This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. For courses in Dosage Calculation and use across the Nursing curriculum. Basic dosage calculation and administration for nurses Dosage Calculations: A Multi-Method Approach helps students develop the dosage calculation skills they need to administer medications safely and accurately in clinical settings. Using plain language, problem examples, and practice opportunities, the text aims to reduce the anxiety many nursing students express about math. It covers three dosage calculation methods-dimensional analysis, ratio and proportion, and formula. Illustrated examples walk students through dosage problems step by step, using all three methods and often comparing approaches side by side. The content progresses from simple math topics to complex applications for calculating and administering a range of medications. The updated 2nd edition delivers the most up-to-date standards for dosage calculation. It draws on safety recommendations of the Joint Commission's National Patient Safety Goals, the Institute for Safe Medical Practice, and the CDC's One and Only Campaign. Also available with MyLab Nursing for Dosage Calculations MyLab™ Nursing for Dosage Calculations is an online self-study and class preparation program designed to engage students and improve results. It reflects the content and organization of Dosage Calculations: A Multi-Method Approach, and includes access to the Pearson eText. Note: You are purchasing a standalone product; MyLab Nursing for Dosage Calculations does not come packaged with this content. Students, if interested in purchasing this title with MyLab Nursing for Dosage Calculations, ask your instructor to confirm the correct package ISBN and Course ID. Instructors, contact your Pearson representative for more information. If you would like to purchase both the physical text and MyLab Nursing for Dosage Calculations, search for: 0134858077 / 9780134858074 Dosage Calculations: A Multi-Method Approach Plus MyLab Nursing with Pearson eText -- Access Card Package, 2/e Package consists of: 0134454138 / 9780134454139 MyLab Nursing with Pearson eText -- Access

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dimensional analysis nursing: Dosage Calculations Anthony Giangrosso, Dolores Shrimpton, 2013-09-19 This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. DRUG DOSAGE CALCULATIONS: A MULTI-METHOD APPROACH introduces all three of today's leading methods of dosage calculation: Dimensional Analysis, Ratio & Proportion, and Formula. It walks step-by-step through solving dosage problems utilizing all three methods, often comparing multiple approaches to solving the same problem side-by-side. Instructors can choose their preferred method, and students can become expert with all three, ultimately choosing the approach they find most efficient. Unit I offers a diagnostic arithmetic test, reviews basic math skills, presents essentials of medication administration, and offers an easy, common sense introduction to dimensional analysis. Next, the text introduces essential metric and household medication systems and conversions. Then, building on these foundations, the text offers in-depth coverage of calculating oral, parenteral, intravenous, and enteral dosages, including flow rates, titrating IV medications, pediatric dosages, and daily fluid maintenance.

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dimensional analysis nursing: Dosage Calculations for Nursing Students Chase Hassen, Bradley J Wojcik, 2019-05-11 Welcome to the second edition of our dosage calculations book! Are you a nursing student, or nurse, who wants to learn a few simple methods of solving dosage calculations without a bunch of formulas? Would you like to raise your hand in your dosage calculation class, after the instructor explains a complicated formula, and ask to approach the white board to show the class a much simpler method? Do you want to go on your clinicals knowing that you have a solid foundation in dosage calculations? Do you want to walk into your Nursing Calculations Class on the first day knowing that you can ace all the tests before the course begins? If you answered yes to any of these questions, this book is for you! The book is divided into seven units containing thirty-five chapters. Unit 1: Essential Skills: You can't learn to drive a car if you don't understand the function of the steering wheel. The same applies to the following subjects when learning dosage calculations. The Metric System Apothecary/Avoirdupois/Household Systems Ratios Dimensional Analysis (DA) and Ratio Proportion (RP) Rounding Numbers Military Time Unit 2:

Auxiliary Subjects: Roman Numerals Scientific Notation Unit 3: Unit Conversions Unit 3 covers converting between and within the various systems of measurement using dimensional analysis and ratio proportion. Unit conversions Within the Metric System Unit Conversions Within the Household System Unit Conversions Between Metric, Household and Apothecary Systems Unit Conversions Involving Pounds and Ounces Unit Conversions Involving Hours and Minutes Unit 4: Dosage Calculations Unit 4 builds on the knowledge gained in the previous units and covers dosage calculations, starting with the terminology and set up of problems, then progressing from easy, one-step, problems through multi-step problems. Dosage Calculations-The Basics Dosage Calculations Levels 1-3 Body Surface Area Dosing Calculations Pediatric Dosage Calculations Pediatric Maintenance Fluid Replacement Calculations Unit 5: IV Flow Rate Calculations Unit 5 starts with the basic terminology and set up of IV flow rate problems, then moves on to: Simple and Advanced Problems IV Flow Rate Adjustment Calculations Heparin Infusion and Adjustment Calculations Unit 6: Percent and Ratio Strength Calculations Percent, Percent Strength Percent Change Ratio Strength Unit 7: Miscellaneous Subjects Reconstitution Calculations Concentrations and Dilutions Milliequivalent Calculations Dosage Calculations Puzzles Self-Assessment Exam The book contains over 600 high quality practice problems with answers. We look forward to your feedback! Chase Hassen and Brad Wojcik

dimensional analysis nursing: Calculate with Confidence Deborah C. Gray Morris, Joyce Lefever Kee, Carmen Adams, 2005-10 This convenient, money-saving package is a must-have for students training for a career in nursing. It includes the Gray Morris: Calculate with Confidence, 4e textbook and Drug Calculations Online. For further information on each individual product, please click on the link provided below. Each module is organized by topic and includes an overview, objectives, a reading assignment, example problems, practice problems, and one or more quizzes. Includes three major drug calculation methods - ratio and proportion, formula, and dimensional analysis - allowing students to apply the method that works best for them. Practice problems provide ample opportunity for students to work on basic math skills. A step-by-step tutorial is included for each practice problem, using the three drug calculation methods. Animations are used to demonstrate techniques of drug administration, such as how to mix two medications in a syringe or withdrawing medication from an ampule. Voiceovers are used to aid in math review and to explain solutions. Interactive self-assessment activities allow students to apply their knowledge, such as identifying parts of medication labels and using critical thinking skills to solve drug calculation problems. Module quizzes help instructors evaluate students' understanding of the major topics. A test pool of approximately 300 questions is organized by content area and level of difficulty, allowing instructors to build and customize their own quizzes and exams. Drug Calculations Online to accompany Calculate with Confidence is a NEW drug calculations online course!

dimensional analysis nursing: Data Theory and Dimensional Analysis William G. Jacoby, 1991 For many readers, data theory is probably unfamiliar. Data isn't usually the subject matter of theory in and of itself. However, in this volume, William Jacoby introduces a theory of data idea. It examines how real world observations are transformed into something to be analyzed that is, data. Jacoby explores some of the basic ideas of data theory, and considers their implications for research strategies in the social sciences. Like others in the series, it is reassuringly slim. It is intended for a general social science readership and is a worthwhile read even for experienced data analysts. since it draws attention not only to often overlooked assumptions, but also to often ignored analysis possibilities. --Telephone Surveys On the whole, this book contains a lot of useful information. --Journal of Classification

dimensional analysis nursing: Calculate with Confidence Deborah Gray Morris, 2010 Calculate with Confidence provides a clear consistent format with a step-by-step approach to the calculation and administration of drug dosages. It covers the ratio and proportion, formula, and dimensional analysis methods. This popular text focuses on enhancing the learning experience of students at all curricular levels by making content clinically applicable. Concepts relating to critical thinking, logical thinking, and nursing process are presented throughout. New practice problems

have been added throughout this edition and rationales for the answers continue to be provided giving the students a better understanding of principles related to drug dosages. This fifth edition addresses the increasing responsibility of nurses in medication and administration; emphasizes the priority for client care, and presents material that reflects the current scope of the nursing practice. A clear and consistent, step-by-step approach to calculations and administration makes it easy to understand. Ratio and Proportion, Formula, and Dimensional Analysis content provides you with well-rounded coverage. Pretest and post-test help identify strengths and weaknesses in competency of basic math before and assess your comprehension after Unit One: Math Review. Points to Remember boxes highlighted in each chapter help you remember important concepts. Critical thinking information that should be applied in the clinical setting to help avoid drug calculation and administration errors is boxed throughout the text. Full-color illustrations, photographs, and drug labels familiarize you with what you'll encounter in the clinical setting. Current recommendations from The Joint Commission and Institute for Safe Medication Practices are followed throughout. Caution boxes identify issues that may lead to medication errors and strengthen actions that must be taken to avoid calculation errors. Tips for Clinical Practice calls attention to information critical to math calculation and patient safety as well as issues related to practice. Rule boxes familiarize students with information needed to accurately solve drug calculation problems.

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calculation problems.

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