

## 2021–2022 Pharmacy Math Skills eLearning Curriculum

CriticalPoint’s Fundamental Math Skills for Pharmacy Practice is an interactive, web-based program that teaches pharmacy-related mathematics in eight eLessons using real-world applications. A secure exam is administered online with each module, and successful participants can immediately print their certificates of completion. This program will benefit pharmacists, technicians, and students by building a proper understanding of the mathematical principles of hospital pharmacy practice.

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### **eCourse: Fundamental Math Skills for Pharmacy Practice Course (8 eLessons/8 hours CE)**

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#### **Introduction to Calculations (1 hour)**

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- Express the importance of calculations, skills required, and the problem-solving approach to calculations in pharmacy.
- Recognize symbols, terminology, and abbreviations commonly used in pharmacy as well as their potential for misuse.
- Perform basic addition, subtraction, division, and multiplication.
- Describe common elements of a prescription for medication.
- Identify basic dosage forms.
- Discuss the use of pharmacy time in patient-dose scheduling.
- Describe some basic precautions to reduce the risk of calculation errors.

#### **Measurement Systems (1 hour)**

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- Identify commonly used units of measure.
- Identify abbreviations and symbols used in pharmacy measurement systems.
- Perform calculations and conversions between units of measure within the same and among different measurement systems.
- Calculate body surface area for complex medication delivery.

#### **Basic Mathematical Concepts 1: Roman Numerals, Fractions, and Decimals (1 hour)**

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- Identify and convert numbers to/from the Roman and Arabic numeral systems.
- Explain how to reduce fractions.
- Calculate clinical problems involving the addition and subtraction of fractions.
- Define and compare decimals and fractions.
- Convert decimals to fractions and fractions to decimals.



### **Basic Mathematical Concepts 2: Ratios, Proportions, and Percents (1 hour)**

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- Demonstrate the use of place values in decimals and how to accurately write numbers in their decimal form.
- Perform basic mathematical functions with decimals.
- Solve ratios and proportions in calculations.
- Convert percent to and from decimals.
- Calculate percent strengths in pharmacy practice.

### **Percents and Concentrations (1 hour)**

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- Demonstrate the relationship between percents, ratios, decimals, and fractions.
- Describe percentage strength as weight in volume, volume in volume, and weight in weight.
- Perform appropriate calculations based on a given percentage strength.
- Calculate product strengths by using percents and ratios.

### **Building Proficiency in Performing Calculations Required for Dosing (1 hour)**

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- Utilize methods for calculating doses using the number of doses, size of doses, and total quantity of medication.
- Calculate doses based on recommended dose ranges and product-label strength.
- Identify methods of calculating doses for medication administration in pediatric patients.
- Apply knowledge of conversion factors to accurately calculate medication doses.

### **Building Proficiency Calculations Required for Dilution and Reconstitution (1 hour)**

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- Describe methods to calculate drug quantities using alligation medial and alternate when compounding sterile preparations.
- Explain how to calculate the amount of a higher-strength solution needed to prepare a solution of a lower strength.
- Explain the elements required for reconstitution of medications available as a dry powder.
- Using drug product information, list the steps for performing calculations required for reconstitution and dilution.
- Recognize situations in which serial dilutions are required, and describe the calculations needed to perform the dilutions.

### **Building Proficiency in Sterile Compounding Calculations (1 hour)**

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- Describe calculations required to increase and decrease the concentration of components in compounded sterile preparations.
- Identify methods used to calculate the amounts of additives to CSPs to be compounded.



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- Explain the use of direct statement, percentage strength, and ratio strength to accurately determine amounts of components to be added during the preparation of sterile solutions.
- Recall and apply knowledge of ratios and proportions to accurately perform calculations required for preparation of CSPs.

**ACPE-Approved Continuing Education is valid from April 2021 through July 2022**

### Credit for Pharmacists and Pharmacy Technicians



In support of improving patient care, Therapeutic Research Center is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

### Statement of Participation/Course Completion

Credit will be awarded to participants who take the course, successfully complete the quiz with at least an 80%, submit a course evaluation, and have provided an accurate NABP e-Profile ID and DOB. Participants who have successfully completed this course AND have provided accurate NABP e-Profile information, including month and day of birth, will have their CE credits submitted to CPE Monitor.

It is the participant's responsibility to verify credit is accurately posted to CPE Monitor. Participants who have questions about their credits or do not see their credits on CPE Monitor 20 days after their participation should contact CriticalPoint. Requests received after day 30 may not receive credit. Official statements of credit are only available from CPE Monitor.

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