PHARMACY TECHNICIAN CERTIFICATION BOARD (PTCB) MATH PRACTICE EXAM (SAMPLE)

STUDY GUIDE



SAMPLE STUDY GUIDE WITH LIMITED QUESTIONS

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Introduction

Preparing for a certification exam can feel overwhelming, but with the right tools, it becomes an opportunity to build confidence, sharpen your skills, and move one step closer to your goals. At Examzify, we believe that effective exam preparation isn't just about memorization, it's about understanding the material, identifying knowledge gaps, and building the test-taking strategies that lead to success.

This guide was designed to help you do exactly that.

Whether you're preparing for a licensing exam, professional certification, or entry-level qualification, this book offers structured practice to reinforce key concepts. You'll find a wide range of multiple-choice questions, each followed by clear explanations to help you understand not just the right answer, but why it's correct.

The content in this guide is based on real-world exam objectives and aligned with the types of questions and topics commonly found on official tests. It's ideal for learners who want to:

- Practice answering questions under realistic conditions,
- Improve accuracy and speed,
- Review explanations to strengthen weak areas, and
- Approach the exam with greater confidence.

We recommend using this book not as a stand-alone study tool, but alongside other resources like flashcards, textbooks, or hands-on training. For best results, we recommend working through each question, reflecting on the explanation provided, and revisiting the topics that challenge you most.

Remember: successful test preparation isn't about getting every question right the first time, it's about learning from your mistakes and improving over time. Stay focused, trust the process, and know that every page you turn brings you closer to success.

Let's begin.

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How to Use This Guide

This guide is designed to help you study more effectively and approach your exam with confidence. Whether you're reviewing for the first time or doing a final refresh, here's how to get the most out of your Examzify study guide:

1. Start with a Diagnostic Review

Skim through the questions to get a sense of what you know and what you need to focus on. Your goal is to identify knowledge gaps early.

2. Study in Short, Focused Sessions

Break your study time into manageable blocks (e.g. 30 – 45 minutes). Review a handful of questions, reflect on the explanations.

3. Learn from the Explanations

After answering a question, always read the explanation, even if you got it right. It reinforces key points, corrects misunderstandings, and teaches subtle distinctions between similar answers.

4. Track Your Progress

Use bookmarks or notes (if reading digitally) to mark difficult questions. Revisit these regularly and track improvements over time.

5. Simulate the Real Exam

Once you're comfortable, try taking a full set of questions without pausing. Set a timer and simulate test-day conditions to build confidence and time management skills.

6. Repeat and Review

Don't just study once, repetition builds retention. Re-attempt questions after a few days and revisit explanations to reinforce learning. Pair this guide with other Examzify tools like flashcards, and digital practice tests to strengthen your preparation across formats.

There's no single right way to study, but consistent, thoughtful effort always wins. Use this guide flexibly, adapt the tips above to fit your pace and learning style. You've got this!

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Questions

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1. What is the Roman numeral representation of the number 1250?

A. MCCL

B. MCCXX

C. MCXL

D. MCCLXX

2. What is the conversion of 11 degrees Celsius to Fahrenheit?

A. 51.8

B. 50.0

C. 52.5

D. 48.2

3. For the formula Xg / Xml = ?, what is being calculated?

A. Volume

B. Concentration

C. Percentage

D. Weight

4. When subtracting 2/5 from 3/5, what is the resulting fraction?

A. 1/5

B. 1/2

C. 2/5

D. 3/5

5. A patient is to receive 1250mL of D5LR over 10 hours. What is the flow rate in gtts/min if the drop factor is 20gtts/mL?

A. 50

B. 42

C. 25

D. 30

6. How do you express the sum of 3/5 and 2/5?

A. 1

B. 5/5

C. 1/2

D. 7/5

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7. What is the amount in grams of drug in a 200ml solution at 1.5% concentration?

A. 2.5

B. 3.0

C. 4.0

D. 3.5

8. What is the total volume of 200mg of medication if the concentration is 50mg/ml?

A. 2ml

B. 3ml

C. 4ml

D. 5ml

9. What is the total volume of a 4.5L saline solution created with a 15% solution of sodium chloride to obtain a 0.9% solution?

A. 1L

B. 1.5L

C. 2L

D. 4.5L

10. How many milligrams are there in 5 grains?

A. 100

B. 325

C. 500

D. 750

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Answers

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1. A
2. A
3. C
4. A
5. B
6. A
7. A
8. A
9. D
10. B

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Explanations

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1. What is the Roman numeral representation of the number 1250?

A. MCCL

B. MCCXX

C. MCXL

D. MCCLXX

To convert the number 1250 into Roman numerals, we break down the number into its constituent parts. The Roman numeral representations are as follows: - "M" represents 1000. - "C" represents 100. - "L" represents 50. For the number 1250: 1. Start with 1000, which is represented by "M". 2. The next part is for 200 (which is 2 times 100). This is represented by "CC". 3. We then add 50, which is represented by "L". Putting these together, we have: - 1000 = M - 200 = CC - 50 = L Combining these gives us "MCCL", which correctly represents 1250 in Roman numerals. Thus, the representation of 1250 as "MCCL" is accurate, making this the correct answer.

2. What is the conversion of 11 degrees Celsius to Fahrenheit?

A. 51.8

B. 50.0

C. 52.5

D. 48.2

To convert degrees Celsius to degrees Fahrenheit, the formula used is: \[F = \left(C \times \frac{9}{5} \right) + 32 \] In this case, you have 11 degrees Celsius. Plugging that value into the formula: 1. Multiply 11 by \(\frac{9}{5}\): \[11 \times \frac{9}{5} = 11 \times 1.8 = 19.8 \] 2. Then, add 32 to this result: \[19.8 + 32 = 51.8 \] Thus, the conversion of 11 degrees Celsius to Fahrenheit is 51.8 degrees. This result aligns perfectly with the choice, indicating that the calculation adheres to the established formula for conversion between these two temperature scales, effectively demonstrating understanding and application of the mathematical principles involved.

3. For the formula Xg / Xml = ?, what is being calculated?

A. Volume

B. Concentration

C. Percentage

D. Weight

The formula Xg / Xml represents a calculation involving the relationship between mass and volume. When you have grams (g) in the numerator and milliliters (ml) in the denominator, the resulting calculation expresses a concentration. In this context, concentration is often understood as the amount of solute (in grams) present in a certain volume of solution (in milliliters). This is a common way to express the strength of a solution, typically in terms of grams per milliliter or similar units. Thus, interpreting the equation as calculating concentration fits with standard practices in pharmacy and chemistry for determining how much substance is present per unit of volume. Volume, weight, and percentage are related concepts but do not directly represent what is being calculated with this specific formula. Volume refers to the space occupied by a substance, weight generally relates to the mass of a substance in totality, and percentage would require a different calculation to derive a ratio in that specific context. Therefore, the correct understanding of the formula Xg / Xml clearly indicates that concentration is what is being calculated.

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4. When subtracting 2/5 from 3/5, what is the resulting fraction?

A. 1/5

B. 1/2

C. 2/5

D. 3/5

To find the result of subtracting 2/5 from 3/5, you need to directly subtract the numerators while keeping the denominator the same since both fractions have a common denominator of 5. Start by taking the numerator of 3/5, which is 3, and subtract the numerator of 2/5, which is 2. When you do this calculation: 3 (from 3/5) - 2 (from 2/5) = 1 The denominator remains unchanged (still 5), so the resulting fraction is 1/5. This process illustrates the basic principle of subtracting fractions with the same denominator, reinforcing the idea that the operation is focused on the numerators while the common denominator serves as a consistent reference. Therefore, the correct result of the subtraction is 1/5, making it the correct answer to the question.

5. A patient is to receive 1250mL of D5LR over 10 hours. What is the flow rate in gtts/min if the drop factor is 20gtts/mL?

A. 50

B. 42

C. 25

D. 30

To determine the flow rate in drops per minute (gtts/min), you start by calculating the total volume to be infused and the total time of infusion in minutes. First, convert the infusion time from hours to minutes: 10 hours × 60 minutes/hour = 600 minutes. Next, you have a total volume of 1250 mL to be infused over that time. To find the flow rate in mL/min, use the following formula: Flow rate (mL/min) = Total volume (mL) / Total time (min) Flow rate (mL/min) = 1250 mL / 600 min = 2.0833 mL/min. Now that you have the flow rate in mL/min, you need to convert this to drops per minute using the drop factor. The drop factor is the number of drops per mL, which in this case is 20 gtts/mL. To find the flow rate in gtts/min, multiply the flow rate in mL/min by the drop factor: Flow rate (gtts/min) = Flow rate (mL/min) × Drop factor (gtts/mL) Flow rate (gtts/min) = 2.0833 m

6. How do you express the sum of 3/5 and 2/5?

A. 1

B. 5/5

C. 1/2

D. 7/5

To express the sum of 3/5 and 2/5, you begin by recognizing that both fractions have a common denominator of 5. This allows for straightforward addition. The numerators, which in this case are 3 and 2, are added together: 3 + 2 = 5. This gives you a new fraction with the same denominator: 5/5. A fraction of 5/5 is equivalent to 1, as any number divided by itself (excluding zero) equals 1. Thus, when you add 3/5 and 2/5, you ultimately arrive at 1, confirming that this is the correct way to express their sum. The other options, while potentially representing different values or states, do not reflect the specific sum of 3/5 and 2/5 accurately within the context of basic fraction addition.

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7. What is the amount in grams of drug in a 200ml solution at 1.5% concentration?

A. 2.5

B. 3.0

C. 4.0

D. 3.5

To determine the amount of drug in grams present in a solution based on its concentration, you can use the formula: \[\text{Amount of drug (grams)} = \text{Volume of solution (mL)} \times \left(\frac{\text{Concentration (\%)}}{100}\right) \] In this case, you have a 200 mL solution with a concentration of 1.5%. First, convert the concentration percentage into its decimal form: \[1.5\% = \frac{1.5}{100} = 0.015 \] Next, multiply the volume of the solution by the decimal concentration: \[\text{Amount of drug} = 200 \, \text{mL} \times 0.015 = 3 \, \text{grams} \] Thus, the amount of drug in the 200 mL solution at a 1.5% concentration is 3 grams. This calculation clearly indicates that 3 grams is the correct answer based on the applied formula and proper units. The established method retrieves the exact mass of drug from the specified concentration and volume, demonstrating how concentration directly relates to the quantity of substance in a

8. What is the total volume of 200mg of medication if the concentration is 50mg/ml?

A. 2ml

B. 3ml

C. 4ml

D. 5ml

To determine the total volume of 200 mg of medication with a concentration of 50 mg/ml, you can use the formula for calculating volume based on the amount of substance and its concentration. The formula is: Volume (ml) = Amount (mg) / Concentration (mg/ml) Substituting the values into the formula gives: Volume (ml) = 200 mg / 50 mg/ml When you perform the division: 200 mg ÷ 50 mg/ml = 4 ml This calculation shows that the correct total volume required to achieve a dose of 200 mg, when the concentration is 50 mg/ml, is indeed 4 ml. This means that if you have a solution where each milliliter contains 50 mg of medication, you would need 4 ml of that solution to obtain a total of 200 mg of the medication. Therefore, the total volume of medication in this concentration is accurately determined to be 4 ml.

9. What is the total volume of a 4.5L saline solution created with a 15% solution of sodium chloride to obtain a 0.9% solution?

A. 1L

B. 1.5L

C. 2L

D. 4.5L

To determine the total volume of the saline solution created with a 15% sodium chloride solution to achieve a 0.9% solution, we start with the final desired volume. The question states that the typical volume of the saline solution is 4.5 liters. In creating a saline solution, when you combine a concentrated solution with a diluent (often sterile water or another solvent), the total volume of the final solution will be equal to the original volume of the concentrated solution plus any additional diluent added. In this specific scenario, we are targeting a 4.5-liter solution, which is indicative of the final total volume of the saline solution that is required. Therefore, the total volume you are looking for, which is the volume of the 0.9% saline solution, is indeed 4.5 liters. Other options do not align with the requirement for the total volume of the final saline solution, which is specifically stated as 4.5 liters. Hence, the correct answer is that the total volume of the saline solution created is 4.5 liters.

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10. How many milligrams are there in 5 grains?

A. 100

B. 325

C. 500

D. 750

To determine how many milligrams are in 5 grains, it is essential to know the conversion rate between grains and milligrams. One grain is equal to approximately 64.8 milligrams. To find the total milligrams in 5 grains, you would multiply the number of grains by the conversion factor. Calculating this: 5 grains × 64.8 mg/grain = 324 mg Since 324 mg is closest to 325 mg, this option is the best choice. Understanding the conversion from grains to milligrams is vital in pharmacy practice, especially when dealing with medication dosages, as many prescriptions can be written in grains while the pharmacy must dispense and measure in milligrams. Therefore, recognizing and accurately converting these units is crucial for ensuring patient safety and effective medication management.

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Next Steps

Congratulations on reaching the final section of this guide. You've taken a meaningful step toward passing your certification exam and advancing your career.

As you continue preparing, remember that consistent practice, review, and self-reflection are key to success. Make time to revisit difficult topics, simulate exam conditions, and track your progress along the way.

If you need help, have suggestions, or want to share feedback, we'd love to hear from you. Reach out to our team at hello@examzify.com.

Or visit your dedicated course page for more study tools and resources:

https://ptcbmath.examzify.com

We wish you the very best on your exam journey. You've got this!

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