

HOSA Medical Math Assessment Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

Copyright © 2025 by Examzify - A Kaluba Technologies Inc. product.

ALL RIGHTS RESERVED.

No part of this book may be reproduced or transferred in any form or by any means, graphic, electronic, or mechanical, including photocopying, recording, web distribution, taping, or by any information storage retrieval system, without the written permission of the author.

Notice: Examzify makes every reasonable effort to obtain from reliable sources accurate, complete, and timely information about this product.

SAMPLE

Questions

SAMPLE

1. If a solution contains 5% sodium chloride, how many grams of sodium chloride are in 200 mL?
 - A. 10 g
 - B. 5 g
 - C. 15 g
 - D. 8 g
2. How many mL are in a cup of liquid?
 - A. 240 mL
 - B. 250 mL
 - C. 300 mL
 - D. 200 mL
3. What is 0.5 of a liter in milliliters?
 - A. 200 mL
 - B. 300 mL
 - C. 500 mL
 - D. 1000 mL
4. How many tablespoons are in 15 milliliters?
 - A. 1 tablespoon
 - B. 2 tablespoons
 - C. 3 tablespoons
 - D. 4 tablespoons
5. What is the equivalent of 500 milliliters in cups?
 - A. 1 cup
 - B. 2 cups
 - C. 4 cups
 - D. 5 cups
6. How many cubic millimeters are in 1 cubic centimeter?
 - A. 10 mm³
 - B. 100 mm³
 - C. 1000 mm³
 - D. 500 mm³

- 7. How many inches are there in 1 meter?**
- A. 30.48 inches**
 - B. 36.57 inches**
 - C. 39.37 inches**
 - D. 40.32 inches**
- 8. What unit corresponds to the abbreviation lb?**
- A. pound**
 - B. litre**
 - C. kilogram**
 - D. ounce**
- 9. What is the weight of 250 mL of a fluid that weighs 0.95 g/mL?**
- A. 237.5 g**
 - B. 250 g**
 - C. 255 g**
 - D. 240 g**
- 10. What is the relationship between grams and milligrams?**
- A. 1 gram = 10 milligrams**
 - B. 1 gram = 100 milligrams**
 - C. 1 gram = 1000 milligrams**
 - D. 1 gram = 500 milligrams**

Answers

SAMPLE

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

SAMPLE

Explanations

SAMPLE

1. If a solution contains 5% sodium chloride, how many grams of sodium chloride are in 200 mL?

- A. 10 g**
- B. 5 g**
- C. 15 g**
- D. 8 g**

To determine how many grams of sodium chloride are present in a 200 mL solution with a concentration of 5%, it is important to understand what a 5% solution means. A 5% solution indicates that there are 5 grams of sodium chloride in every 100 mL of solution. To find out how many grams of sodium chloride are in 200 mL, we can set up a proportion. Since 200 mL is double the volume of 100 mL, we can simply double the amount of sodium chloride contained in 100 mL. Therefore, in 200 mL, there are: 5 grams per 100 mL $\times 2 = 10$ grams. This logical calculation confirms that the correct answer, indicating the presence of 10 grams of sodium chloride in 200 mL of a 5% solution, is accurate. Understanding this concentration and its relationship with volume is crucial in medical math, as it frequently applies to dosage and preparation of solutions in healthcare settings.

2. How many mL are in a cup of liquid?

- A. 240 mL**
- B. 250 mL**
- C. 300 mL**
- D. 200 mL**

A cup is a standard unit of measurement in cooking and food services, commonly used in many recipes. The approximate volume of a cup is 240 milliliters. This value is widely accepted in both culinary practices and nutritional labeling, making it an essential conversion to know when dealing with liquid measurements. In comparison to the other options, the values of 250 mL and 300 mL exceed the typical measurement for a cup, while 200 mL is slightly less than a standard cup, demonstrating the importance of knowing the correct conversion for consistency in measurements, especially in medical and nutritional contexts. Therefore, acknowledging that there are 240 mL in a cup is not only useful for accurate measurement but also crucial for understanding fluid intake in medical settings.

3. What is 0.5 of a liter in milliliters?

- A. 200 mL**
- B. 300 mL**
- C. 500 mL**
- D. 1000 mL**

To convert liters to milliliters, it's important to know the conversion factor: 1 liter is equivalent to 1000 milliliters. Therefore, to find out how many milliliters are in 0.5 liters, you multiply 0.5 by 1000. Calculating this gives: 0.5 liters $\times 1000$ milliliters/liter = 500 milliliters. This shows that 0.5 of a liter is clearly 500 mL, confirming that the answer is accurate based on this straightforward conversion process. Understanding the relationship between liters and milliliters is essential in medical settings, where precise measurements are crucial.

4. How many tablespoons are in 15 milliliters?

- A. 1 tablespoon**
- B. 2 tablespoons**
- C. 3 tablespoons**
- D. 4 tablespoons**

There are approximately 15 milliliters in 1 tablespoon. This conversion is based on standard measurement conversions used in cooking and medical dosages, where 1 tablespoon is equivalent to about 15 milliliters. This relationship holds true across various contexts, making it a reliable conversion to use when measuring liquid volumes. Therefore, when you are given 15 milliliters and you need to convert it to tablespoons, it directly equates to 1 tablespoon. This understanding is essential, especially in healthcare settings, where precise measurements are crucial for medication dosing.

5. What is the equivalent of 500 milliliters in cups?

- A. 1 cup**
- B. 2 cups**
- C. 4 cups**
- D. 5 cups**

To determine the equivalent of 500 milliliters in cups, it's important to know the conversion factor between milliliters and cups. One cup is equivalent to approximately 240 milliliters. To convert 500 milliliters to cups, you divide 500 by 240. When you perform the calculation, you get: $500 \text{ milliliters} \div 240 \text{ milliliters/cup} = \text{approximately } 2.08 \text{ cups}$. This value can be rounded to 2 cups, making it the closest equivalent to 500 milliliters in standard cup measurements. Therefore, the correct answer aligns with this conversion, accurately reflecting that 500 milliliters is roughly equivalent to 2 cups.

6. How many cubic millimeters are in 1 cubic centimeter?

- A. 10 mm^3**
- B. 100 mm^3**
- C. 1000 mm^3**
- D. 500 mm^3**

To determine how many cubic millimeters are in one cubic centimeter, it is helpful to understand the relationship between the metric units involved. A cubic centimeter (cm^3) is defined as the volume of a cube that measures 1 centimeter on each side. Since there are 10 millimeters in a centimeter, each side of the cube in millimeters measures 10 mm. Therefore, the volume of the cube in cubic millimeters can be calculated by cubing the length of one side: $1 \text{ cm} = 10 \text{ mm}$. When the dimensions of the cube are all in millimeters: $\text{Volume} = (10 \text{ mm}) \times (10 \text{ mm}) \times (10 \text{ mm}) = 1000 \text{ mm}^3$. This calculation illustrates that one cubic centimeter indeed contains 1000 cubic millimeters. Understanding this conversion is crucial in medical math, where precise measurements are critical for dosing, calculating volumes, and performing other medical tasks.

7. How many inches are there in 1 meter?

- A. 30.48 inches**
- B. 36.57 inches**
- C. 39.37 inches**
- D. 40.32 inches**

The conversion from meters to inches is based on the relationship that one meter is equivalent to 39.37 inches. This measurement is derived from the fact that there are 39.37 inches in one meter, which is an essential fact in both imperial and metric conversions. Using this conversion factor is particularly important in medical settings where precise measurements are crucial for dosing, sizing equipment, and assessing body measurements. By knowing that 1 meter equals 39.37 inches, healthcare providers can accurately interpret a patient's height, weight, and other key measurements that may be provided in meters, ensuring effective communication and care. Utilizing incorrect conversion factors, such as those implied in the other choices, would lead to inaccuracies in measurements that could have significant implications in a medical context. Understanding and applying the correct conversion ratio is vital for ensuring the precision required in medical practice.

8. What unit corresponds to the abbreviation lb?

- A. pound**
- B. litre**
- C. kilogram**
- D. ounce**

The abbreviation "lb" corresponds to the unit "pound," which is a unit of mass commonly used in the United States and other countries that utilize the imperial system of measurement. The term "pound" originates from the Latin word "libra," which refers to a balance or scale. It is important to note that one pound is equivalent to 16 ounces and approximately 0.45 kilograms in the metric system. Understanding the conversion and relationship between pounds and ounces is crucial, especially in fields such as cooking, pharmaceuticals, and everyday weight measurements. The other options represent different units of measurement; for example, "litre" is a metric unit for volume, "kilogram" is another metric unit of mass that is larger than a pound, and "ounce" is a smaller unit of weight that is also used in conjunction with pounds. Hence, the selection of "pound" as the answer is aligned with the correct identification of the abbreviation "lb."

9. What is the weight of 250 mL of a fluid that weighs 0.95 g/mL?

A. 237.5 g

B. 250 g

C. 255 g

D. 240 g

To determine the weight of a fluid using its volume and density, you can apply the formula: $\text{Weight} = \text{Volume} \times \text{Density}$. In this question, the volume of the fluid is 250 mL, and its density is given as 0.95 g/mL. By substituting these values into the formula, you can calculate the weight: $\text{Weight} = 250 \text{ mL} \times 0.95 \text{ g/mL}$. Calculating that yields: $\text{Weight} = 237.5 \text{ g}$. This confirms that the weight of the fluid is 237.5 grams, which matches with the correct option. This calculation is critical in various medical and laboratory settings where accurate measurements are necessary for proper dosing and treatment. Understanding how to manipulate volume and density allows healthcare professionals to make informed decisions regarding medication administration and other fluid management tasks.

10. What is the relationship between grams and milligrams?

A. 1 gram = 10 milligrams

B. 1 gram = 100 milligrams

C. 1 gram = 1000 milligrams

D. 1 gram = 500 milligrams

The relationship between grams and milligrams is defined by their metric conversion factor. One gram is equivalent to 1000 milligrams. This means that whenever you have a measurement in grams, multiplying by 1000 will convert it to milligrams, as a milligram is one-thousandth of a gram. In practical terms, this conversion is essential in contexts like medicine and science, where precise measurements are crucial. For example, if a medication dosage is prescribed in grams, understanding that 1 gram is equal to 1000 milligrams ensures that health professionals can accurately dispense the correct dose based on smaller measurement units typically used for medications. The other choices do not correctly represent the conversion factor between grams and milligrams, making them invalid for this question.