

Dosage Calculation RN Fundamentals Assessment 3.0 Practice Test (Sample)

Study Guide



Everything you need from our exam experts!

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SAMPLE

Questions

1. If Metronidazole 0.75 g is ordered daily and the patient has 14 tablets of 375 mg each, how many days will this supply last?
 - A. 5 days
 - B. 7 days
 - C. 10 days
 - D. 14 days
2. What is the conversion factor from ounces to milliliters?
 - A. 29.57 mL/oz
 - B. 32 mL/oz
 - C. 28 mL/oz
 - D. 30 mL/oz
3. If vancomycin 1 g IVPB every 12 hours is sent in 200 mL 0.9% NS to infuse over 90 minutes, what is the mL/hr rate?
 - A. 100 mL/hr
 - B. 133 mL/hr
 - C. 150 mL/hr
 - D. 75 mL/hr
4. If a medication dosage is calculated based on a patient's weight of 70 kg requiring 15 mg/kg, how much medication is needed?
 - A. 700 mg
 - B. 1050 mg
 - C. 1500 mg
 - D. 1000 mg
5. How many milliliters are in 1 teaspoon?
 - A. 2 mL
 - B. 5 mL
 - C. 10 mL
 - D. 15 mL

- 6. What is the primary consideration when determining medication dosage?**
- A. Patient's age**
 - B. Patient's weight**
 - C. Patient's socioeconomic status**
 - D. Patient's history of allergies**
- 7. A nurse must give 1200 mg from a vial supplying 300 mg/3 mL. What volume will the nurse need to administer?**
- A. 9 mL**
 - B. 6 mL**
 - C. 12 mL**
 - D. 15 mL**
- 8. For a patient requiring midazolam at 0.07 mg/kg, how many mL should be administered to a patient weighing 50 kg with a concentration of 5 mg/mL?**
- A. 0.5 mL**
 - B. 0.7 mL**
 - C. 1.0 mL**
 - D. 1.2 mL**
- 9. An order is for 500 mL of saline to infuse over 4 hours. What is the infusion rate in mL/hour?**
- A. 100 mL/hour**
 - B. 125 mL/hour**
 - C. 150 mL/hour**
 - D. 200 mL/hour**
- 10. A patient is prescribed 20 g of lactulose to be administered via gastric tube. If lactulose is available at 10 g/15 mL, what volume should be given?**
- A. 15 mL**
 - B. 30 mL**
 - C. 45 mL**
 - D. 60 mL**

Answers

SAMPLE

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

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Explanations

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1. If Metronidazole 0.75 g is ordered daily and the patient has 14 tablets of 375 mg each, how many days will this supply last?

A. 5 days

B. 7 days

C. 10 days

D. 14 days

To determine how many days the supply of Metronidazole tablets will last, first, we need to understand the total amount of medication available and the daily dosage required. The order specifies a daily dose of Metronidazole at 0.75 grams. This needs to be converted into milligrams for easier comparison since the tablets are measured in milligrams. 0.75 grams is equal to 750 milligrams (since 1 gram = 1000 milligrams). Now, the patient has 14 tablets, each containing 375 milligrams. To calculate the total amount of Metronidazole available, multiply the number of tablets by the amount in each tablet: $14 \text{ tablets} \times 375 \text{ mg/tablet} = 5250 \text{ mg total}$. Next, to find out how many days this supply will last, divide the total amount available by the daily dose: $5250 \text{ mg} \div 750 \text{ mg/day} = 7 \text{ days}$. This calculation shows that the supply of Metronidazole will last for 7 days, confirming that this is the correct answer.

2. What is the conversion factor from ounces to milliliters?

A. 29.57 mL/oz

B. 32 mL/oz

C. 28 mL/oz

D. 30 mL/oz

The conversion factor from ounces to milliliters is based on the fact that 1 fluid ounce is equivalent to approximately 29.57 milliliters. This precise conversion is crucial in nursing and medical settings where accurate medication dosages are necessary. As a standard method, rounding to 30 mL per ounce is often used for simplicity in calculations, but the exact figure of 29.57 mL provides a more accurate representation. This conversion is important when preparing medications or fluids that require precise dosing, especially when switching between different measurement systems like the imperial system (ounces) and the metric system (milliliters). Understanding this conversion factor helps ensure that doses are correct, which can be vital for patient safety and effective treatment.

3. If vancomycin 1 g IVPB every 12 hours is sent in 200 mL 0.9% NS to infuse over 90 minutes, what is the mL/hr rate?

- A. 100 mL/hr
- B. 133 mL/hr**
- C. 150 mL/hr
- D. 75 mL/hr

To determine the mL/hr rate for the vancomycin infusion, first, we need to know the total volume to be infused and the time over which it will be administered. In this case, there are 200 mL of 0.9% Normal Saline (NS) that contains the vancomycin. The infusion is to be given over a period of 90 minutes. To convert 90 minutes into hours, we divide by 60 (since there are 60 minutes in an hour): $90 \text{ minutes} \div 60 = 1.5 \text{ hours}$. Next, we can calculate the infusion rate by dividing the total volume by the total time in hours: $200 \text{ mL} \div 1.5 \text{ hours} = 133.33 \text{ mL/hr}$. When rounding to a more commonly used infusion rate for clinical practice, this value is often approximated to 133 mL/hr. Thus, the correct mL/hr rate for the infusion is 133 mL/hr, which aligns with the answer provided.

4. If a medication dosage is calculated based on a patient's weight of 70 kg requiring 15 mg/kg, how much medication is needed?

- A. 700 mg
- B. 1050 mg**
- C. 1500 mg
- D. 1000 mg

To determine the total medication dosage needed for the patient based on their weight and the required dosage per kilogram, you multiply the patient's weight by the dosage per kilogram. In this case, the patient weighs 70 kg and requires a dosage of 15 mg per kg. The calculation is as follows: $70 \text{ kg} \times 15 \text{ mg/kg} = 1050 \text{ mg}$. This means that to provide the correct dosage based on the patient's weight, 1050 mg of the medication is necessary. Thus, the answer indicating 1050 mg is appropriate because it accurately reflects the calculation based on the prescribed rate of medication per kilogram of body weight.

5. How many milliliters are in 1 teaspoon?

- A. 2 mL
- B. 5 mL**
- C. 10 mL
- D. 15 mL

One teaspoon is equivalent to 5 milliliters. This standard measurement is commonly used in both cooking and pharmacology to ensure accurate dosing and medication administration. Recognizing this conversion is vital in nursing and healthcare settings, as it helps in administering the correct dosage of medication, especially when prescriptions or instructions indicate dosages in teaspoons. Understanding the metric system and conversions is crucial for healthcare professionals to prevent errors in medication administration.

6. What is the primary consideration when determining medication dosage?

- A. Patient's age**
- B. Patient's weight**
- C. Patient's socioeconomic status**
- D. Patient's history of allergies**

When determining medication dosage, the primary consideration is the patient's weight. Dosages of many medications are often calculated based on the patient's weight in order to achieve the desired therapeutic effect while minimizing the risk of toxicity or adverse effects. This approach is particularly crucial in pediatric and geriatric populations, where body composition can significantly differ from the average adult. Weight-based dosing ensures that each patient receives an appropriate amount of the medication according to their body mass, which affects how the drug is metabolized and eliminated. For instance, a drug administered at a standard dose for adults may be ineffective or harmful if given to a child or a smaller adult without adjusting for their weight. While a patient's age, socioeconomic status, and history of allergies are important factors in medication management, they do not directly influence the calculation of dosage as fundamentally as weight does. Age can affect metabolism and sensitivity to medications, socioeconomic status can impact adherence and access to medications, and allergies are critical for ensuring safety, but dosage calculations primarily hinge on weight to ensure efficacy and safety tailored to individual patients.

7. A nurse must give 1200 mg from a vial supplying 300 mg/3 mL. What volume will the nurse need to administer?

- A. 9 mL**
- B. 6 mL**
- C. 12 mL**
- D. 15 mL**

To determine the volume needed to administer 1200 mg when the vial provides 300 mg per 3 mL, the nurse needs to first establish a conversion factor from the concentration provided. The concentration of the vial can be calculated as follows: 300 mg in 3 mL translates to 100 mg/mL. Next, to find out how many milliliters are needed for 1200 mg, the nurse can set up the following proportion based on the concentration: 1. Establish the relationship using the concentration: - For every 100 mg, there are 1 mL required. 2. Now, divide the total amount needed (1200 mg) by the concentration (100 mg/mL): - $1200 \text{ mg} \div 100 \text{ mg/mL} = 12 \text{ mL}$. This shows that in order to administer 1200 mg of the medication, the nurse needs to prepare 12 mL of the solution. Thus, the correct volume to administer is 12 mL.

8. For a patient requiring midazolam at 0.07 mg/kg, how many mL should be administered to a patient weighing 50 kg with a concentration of 5 mg/mL?

A. 0.5 mL

B. 0.7 mL

C. 1.0 mL

D. 1.2 mL

To determine the correct volume of midazolam to administer, start by calculating the total dosage required based on the patient's weight. The dosage is prescribed at 0.07 mg/kg for a patient weighing 50 kg. 1. Calculate the total dosage: Total dosage = weight in kg $\times$ dosage in mg/kg Total dosage = 50 kg $\times$ 0.07 mg/kg = 3.5 mg. Next, since the concentration of the medication is 5 mg/mL, you can calculate the volume needed to achieve the total dosage: 2. Calculate the volume to administer: Volume (mL) = Total dosage (mg) / Concentration (mg/mL) Volume = 3.5 mg / 5 mg/mL = 0.7 mL. The patient should receive 0.7 mL of midazolam based on the calculations. This answer aligns precisely with the dosing instructions provided in the question, making it the correct choice. Understanding these calculations is essential for ensuring accurate medication administration in nursing practice.

9. An order is for 500 mL of saline to infuse over 4 hours. What is the infusion rate in mL/hour?

A. 100 mL/hour

B. 125 mL/hour

C. 150 mL/hour

D. 200 mL/hour

To determine the infusion rate in mL/hour for an order of 500 mL of saline to be infused over 4 hours, divide the total volume of saline by the total time in hours. The calculation is as follows: 1. Total volume to infuse: 500 mL 2. Total time for the infusion: 4 hours Infusion rate (mL/hour) = Total volume (mL) / Total time (hours) Infusion rate (mL/hour) = 500 mL / 4 hours Infusion rate (mL/hour) = 125 mL/hour This indicates that the infusion should occur at a rate of 125 mL each hour to complete the total volume of 500 mL within the designated time of 4 hours. This calculation is critical in clinical settings to ensure that fluid administration is done at a safe and effective rate, preventing complications associated with too rapid or too slow of an infusion.

10. A patient is prescribed 20 g of lactulose to be administered via gastric tube. If lactulose is available at 10 g/15 mL, what volume should be given?

A. 15 mL

B. 30 mL

C. 45 mL

D. 60 mL

To determine the correct volume of lactulose to administer, you first need to understand the concentration of the drug available. In this case, lactulose is provided at a strength of 10 grams per 15 milliliters. You need to give a total of 20 grams to the patient. To find out how many milliliters will deliver the required 20 grams, start by identifying how many grams there are in 1 milliliter based on the concentration: 10 grams is contained in 15 milliliters, so to find the amount per milliliter, divide 10 grams by 15 mL. This results in approximately 0.67 grams per milliliter. Next, to find out how many milliliters are needed for 20 grams, you can set up a proportion or perform a calculation. Since 10 grams is found in 15 milliliters, you can double this volume to get to 20 grams: - For 10 grams = 15 mL - For 20 grams = 30 mL Thus, to administer 20 grams of lactulose, you will need to give 30 mL. This aligns with the given volume options, confirming that 30 mL