Math for Meds Self-Study Packet

This packet is a self-study packet that is meant to prepare you for the Math for Medications exam that you will take early on in the semester.

1. Chose a time to take the test when you are not stressed and your have plenty of time to spend on it. Make sure that you have thoroughly prepared yourself and gotten all questions answered. If you have been unsuccessful on a previous test, be sure that you schedule time in the lab to thoroughly review your mistakes and understand them so that you will be successful this time.

2. Memorize conversions and formulas. Write all conversions and formulas on a sheet of scratch paper before reading any questions on the test.

3. When reading questions, read them several times to make sure what the question is asking. Identify what information in the question you need and what information you don't need.
   Example: You are to infuse 1000mL of DSW at a rate of **50mL/hr** through an infusion set that delivers **15 gtts per minute**. What is the drip rate for this client? The bolded information is needed to calculate the drop rate but the 1000mL is not information you will be using. Ignore this information so it doesn't confuse you.

4. When answering medication calculation questions, check to see if the dosage of the doctor's order is in the same unit of measure as the available amount of medication on hand. If not, first convert the unit of measure of one variable so they are the same. Then calculate answer using ratio proportion or basic formula.

   $\dfrac{\text{Desired dosage}}{\text{Dosage on hand}} \times \text{Vehicle drug is available in} = \text{Amount administered}$

   Sample Question: The doctor has ordered Codeine 15 mg. You have codeine tablets that are ½ gr. How many tablets would you administer?

   xmg Cross multiple to solve. ~

   Step 1
   First convert grains to mg:

   $\dfrac{60 \text{ mg}}{1 \text{ gr}} = \dfrac{x \text{ mg}}{0.5 \text{ gr}}$

   Cross multiply
   60 x 0.5 = 1 x X
   30 mg = X

   Now we can change the question to read: The doctor has ordered Codeine 15 mg. You have Codeine tablets that are 30 mg. How many tablets will you administer?

   Step 2
   Solve the problem using ratio proportion or basic formula (see below)

   $\dfrac{15 \text{ mg (Doctors order = Desired)}}{30 \text{ mg (Amount of drug in tablet = what we have on hand)}} \times 1 \text{ tab (vehicle)} = \text{½ tab or 0.5 tab}$

5. IV infusion calculations solve for two variables: mL/hr and/or gtts (drops) per min.. Read the question carefully to see what they are asking for before solving. When answering a question about the **IV flow rate** we are looking for the **# of mL/hr**. This would be used when you are setting an electronic infusion device to infuse the clients IV solutions. The information you need to calculate this is **volume (# of mL) of IV** fluid and **# of hours** it is to be infused over. This can be calculated as per step 1 below.

When answering a question about IV drip rates we are looking for how many drops you will count per minute to infuse the solution without a pump. The information you need to know is **# of mL/hr** that IV is to infuse, the **# of gtts (drops) per minute** of the IV infusion set and that there are **60 minutes** in an hour. If the information in your question does not include mL/hr then you need to utilize the 2 step method to calculate this before calculating your drip rate. **For example:**

Sample Question: You are to infuse 1200 mL of D5W over 24 hours via an infusion set that delivers 10 gtts/mL? What is you IV drip rate?

Step 1 Determine how many mL/hr the infusion is to be given.

1200 mL divided by 24 hours = 50 mL/hr

Now you can change the question to read: You are to infuse 1200 mL of D5W at a rate of 50 mL/hr with an infusion set that delivers 10 gtts/mL. What is your drip rate?

Step 2 Now determine how many drops per minute.

$$\frac{50 \text{ mL/hr x 10 gtts/mL}}{\text{gtts/min 60 minutes}} = 8$$

A **microdrip** infusion set always infuses **60 gtts/mL.**

6. When calculating medications, you will often get a number that needs to be rounded. You can't infuse 18.67 gtts/min. When rounding if your answer is 5 or above you round up to the next number or if it is below 5 you round it to the lower number.

Examples: 18.67 gtts/min rounds to 19 gtts/min
20.35 gtts/min rounds to 20 gtts/min
10.50 gtts/min rounds to 11 gtts/min

7. After answering the question, look at it again and make sure that the answer makes sense. If the amount to be given is less than the amount in one tablet, the answer should be less that one tablet. If the amount to be given is greater than the amount in 1 mL, then your answer will be greater than 1 mL.

Practice Medication Questions

1. The doctor has ordered lnderol 15 mg. You have 10 mg Inderol tablets on hand. How many tablets would you give?

2. MD ordered Clindamycin 300 mg. You have Clindamycin 900 mg in 6 mL. How many mL will you administer?

3. Naloxone 0.8 mg is ordered. You have Naloxone 400 mcg/mL. How many mL will you administer?

4. The MD orders Ceclor 150 mg. You have 125 mg/tsp. How many mL will you administer?

5. Ordered Nitroglycerin 600mcg. Available Nitroglycerin 0.3 mg per tablet. How many tablets would you administer?

6. MD orders Ampicillin 0.5 gram. You have 250 mg/5mL. How much would you administer?

7. The MD orders Coumadin 10 mg. You have 5 mg tablets on hand. How many tablets would you give?

8. You have an order for Cozaar 0.1 gms. You have 50 mg tablets on hand. How many will you administer?

9. The MD orders Demerol 60 mg 1M. You have Demerol l00 mg/mL. How many mL will you administer?

10. Amoxcillin comes in a liquid that contains 500 mg/tbsp. You have an order for 125 mg for an infant. How many mL's will you give?

11. The order is for thiamine 0.05 gm IM and you have an ampule that reads 100 mg per mL. How many mL would you inject?

12. A vial of penicillin labeled 1,200,000 units in 3 mL is available. How many mL are required to give the patient 600,000 units?

13. Codeine 30mg tablets are available. How many tablets are required to administer 15 mg?

14. You are to give 0.2 gm of a certain drug from a solution marked 50 mg in 1 mL. How many mL must you give?

Practice IV Infusion Questions

1. Your doctor's order reads administer D5NS at 75 mL/hr over 8 hr. Your IV tubing has a drip factor of 20 gtts/mL. What is your drip rate or gtts/min?

2. You are administering Cefoxitin 250mg in 50 mL NS over 30 minutes to a child. You are using microdrip tubing to infuse. What is your drip rate or gtts/min?

3. The doctor orders Ticarcillin 750 mg in 75 mL of NS over 30 min. How many mL/hr should you set the infusion pump for?

4. The doctor orders Unasyn 1.5 grams in 100 mL of D5W infused over 30 min. Your IV tubing has a drip factor of 15 gtts/mL. What would your drip rate or gtts/min be for infusing this medication?

5. You doctor's order reads infuse 1000mL NS over 8 hrs. How many mL/hr will you infuse?

6. If you were to infuse 600 mL in 10 hours with a tubing which delivers 10 gtt per mL, what will the drip rate or gtts/min be?

7. What is the electronic infusion device flow rate or mL/hr to deliver 100 mL in 30 minutes?

8. Using a set that delivers 15 gtt/mL, what will the drip rate or gtts/min be to infuse 2000 mL in 10 hours?

9. What will the drip rate or gtts/min be to infuse 50 mL of D5W over 1 hour with a microdrip set?

10. Give amineophylline 0.25 g in 125 mL D5W to run for 30 minutes by electronic infusion device. What is the flow rate or mL/hr that you would set the pump for?

Conversion Questions

1. 1/2 fluid ounce = ___ mL

2. 1.5 gm = ____mcg

3. 2 tbsp = ____mL

4. 300 mg = gm ____

5. 2 liters = ____mL

6. 3 oz = ____tbsp

7. 2.5 tsp = ____mL

8. 7 mcg = ____mg

9. 20 kg = ____lbs

10. 0.25 gm = ____mg

11. 40 gm = ____mg

12. 250 mL = ____liter

Answer Sheet

Practice Medication Questions

1. 1.5 tabs
2. 2 rnl
3. 2 rnl
4. 6 mL
5. 2 tabs
6. 10 mL
7. 2 tab
8. 2 tab
9. 0.6 mL
10. 3.75mL
11. 0.5 mL
12. 1.5 mL
13. ½ tab
14. 4 mL

Practice IV Infusion Questions

1. 3 gtts/min
2. 100 gtts/min
3. 150 mL/hr
4. 50 gtts/min
5. 125 mL/hr
6. 10 gtts/min
7. 200 mL/hr
8. 50 gtts/min
9. 50 gtts/min
10. 250 mL/hr

Conversion Questions

1. 15 mL
2. 1,500,000 mcg
3. 30 mL
4. 0.3gm
5. 2000 mL
6. 6 tbsp
7. 12.5 mL
8. 0.007 mg
9. 44 lbs
10. 250 mg
11. 40,000 mg
12. 0.25 L