

MDM101 - BSN 105

Dosage Calculation for Nursing

PRACTICE EXAM QUESTIONS

Important Notes:

This PRACTICE exam was prepared as another tool for students to prepare for their final exam and may or may not represent fully the content of the final exam

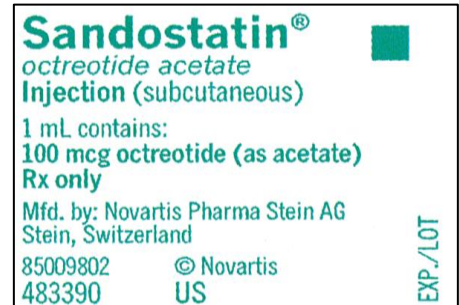
We have organized the questions so that subject matter is grouped together. We hope this helps you better identify areas you find challenging that might need more attention while studying. **Your Final Exam will not be organized in this manner** and questions will appear more random

This mock exam EXCEEDS the number of questions that would appear on your final. Please do not consider the length indicative of what you should be able to complete during a live test.

1. Order: Octreotide acetate 0.05 mg SUBCUT daily.

Using the included label, calculate the volume the nurse will administer for a single dose. Show your work.

Administer: _____



2. Answer the following questions based on the medication label provided.

NDC 0173-0489-00 **GlaxoWellcome**

Zofran®
(ondansetron hydrochloride)
Oral Solution

4 mg/5 mL

Caution: Federal law prohibits dispensing without prescription.
50 mL

Each 5 mL contains 5 mg of ondansetron HCl dihydrate equivalent to 4 mg of ondansetron.
See package insert for Dosage and Administration.
Store between 15° and 30°C (59° and 86°F). Protect from light. Store bottle upright in carton.

Glaxo Wellcome Inc.
Research Triangle Park, NC 27709
Made in England
4058968
Rev. 3/96

- a) A patient undergoing chemotherapy has the following order:
Ondansetron, 12 mg PO, q6h, prn for nausea.
Calculate the volume you will administer for a single dose. Show your work.

Administer: _____

- b) What is the drug dose strength of the medication?
- c) What is the dose of the vial?
- d) What is the maximum dose of medication the client can receive in 24 hours?

3. Use the label below to answer the following questions.
A client with a urinary tract infection has the following order:
Ampicillin 450 mg IM q8h

The image shows a rectangular label for Ampicillin injection. At the top left, it says 'NDC 00000-0000-00'. Below that, 'AMPICILLIN' is written in large blue letters, followed by 'For Injection, USP' in smaller black text. Underneath, it says 'ampicillin sodium equivalent to' and then '500 mg ampicillin' in a blue box. Below that, it says 'For IM or IV Use'. On the left side, there are fields for 'Lot.' and 'Exp. Date'. At the bottom left, there is a blue box that says 'Rx only'. On the right side, there is a vertical red box that says 'DCL DELMAR | Cen gage Learning for Educational Purposes Only'. To the right of the red box is a barcode with the number '00000-0000-00' below it. Below the barcode, there is a text box with the following text: 'For I.M. Use: add 1.7mL diluent. The resulting solution provides 250mg ampicillin per mL. IM or IV injection: USE SOLUTION WITHIN 1 HOUR.'

- a. What volume of diluent should be added?
- b. What volume will the nurse administer for a single dose?

Administer: _____

- c. How long after reconstitution is the medication stable?
- d. What is the dose of the vial?

4. A patient is having difficulty swallowing tablets thus the nurse decides to administer the medication to the patient as an oral suspension. If the order is for 80 mg of the medication and the oral suspension is supplied in a concentration (drug dose strength) of 20 mg/5 mL, the nurse will administer _____ for a single dose.
- a. 4 tsp
- b. 4 mL
- c. 20 tsp
- d. 1 oz

5. Your patient is ordered digoxin 0.45 mg PO daily. If digoxin is supplied as 150 mcg tablets, how many tablets will the nurse administer for a single dose?

Administer _____ tablets.

6. Your patient is ordered Levothyroxine 100 mcg PO daily for a diagnosis of hypothyroidism. The ward stock availability is Levothyroxine 0.4 mg tablets. How many tablets will you administer for a single dose?

- a. $\frac{1}{2}$ tab
- b. $\frac{1}{4}$ tab
- c. 1 tab
- d. $\frac{3}{4}$ tab

7. Your patient has a post-op systemic infection and has been ordered cephalexin 1.5 g IV q8h. The nurse is preparing the medication and is using a concentration of 250 mg/mL.

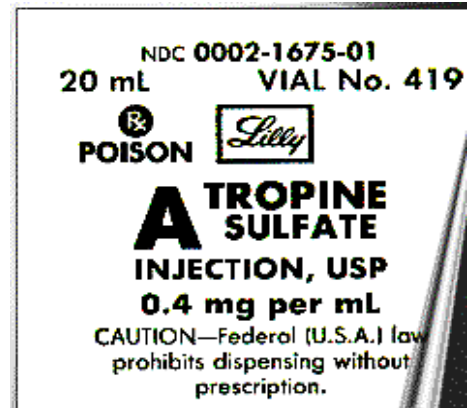
- a. What volume will the nurse administer for a single dose?

- b. What is the total dose of medication the patient will receive in a 7-day treatment course is?

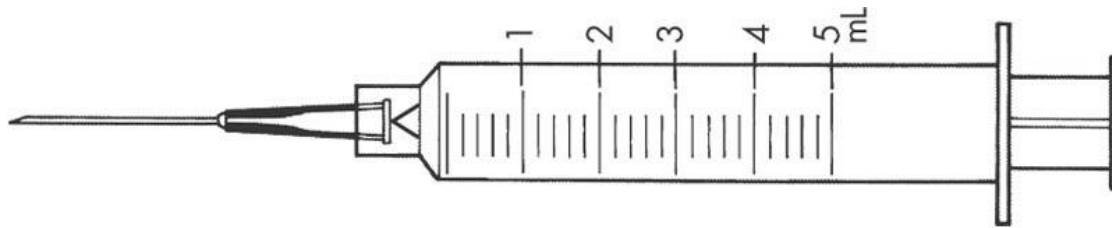
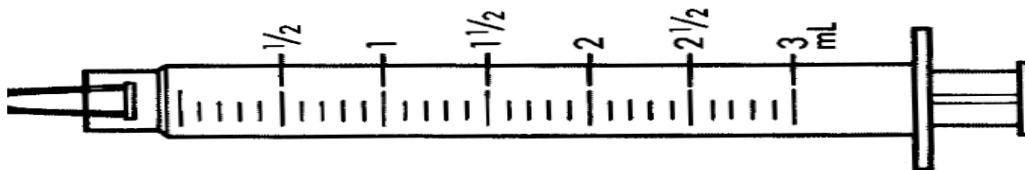
8. A recipe to make 3 dozen chocolate chip cookies calls for 454 g of butter. If you want to make 5 dozen cookies, how many g of butter is required? Round answer to nearest 10th as required.

9. Order: Atropine sulfate 300 mcg IM stat. Using the included label calculate the volume of medication required to administer a single dose. Show your work.

a. Administer _____



b. Based on the volume calculated, select the correct syringe to use and shade in the volume to be administered.



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10. A patient weighing 192 lb has an order for Cogentin 1.5 mg/kg IM stat. Cogentin is supplied as 250 mg/mL. Round answer to nearest whole number if necessary.

a. What is the dose required for this patient?

b. What volume will you administer for a single dose?

11. A child weighing 64 lb has an order for Morphine Sulfate 8.4 mg IV q2h for pain. The recommended range for a child is 0.2-0.4 mg/kg/dose. The morphine availability is 6 mg/mL

a. According to the recommendation, is the ordered dose safe?

b. If no, what action would you take?

c. If yes, what volume is required to administer a single dose?

12. Convert the following: Round answers to nearest 100th where indicated

a. 450 mg = _____ mcg

b. 25 lb = _____ kg

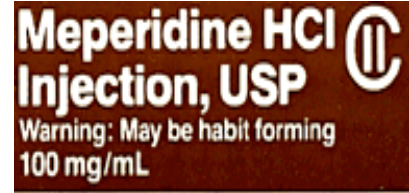
c. 350 mL = _____ L

d. 325 mg = _____ g

e. 735 g = _____ kg

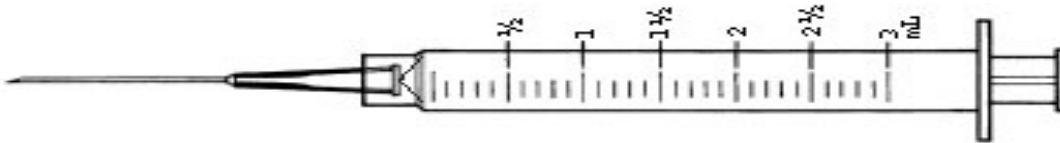
13. Order: Meperidine hydrochloride 120 mg IM q4h prn for pain. Use the included label to calculate the volume of Meperidine hydrochloride that you will administer for a single dose. Show your work.

a. Administer: _____



For IM, SC or Slow IV* Use
*See Insert
20 mL Multiple Dose Vial

b. Shade the syringe to show the correct dose.



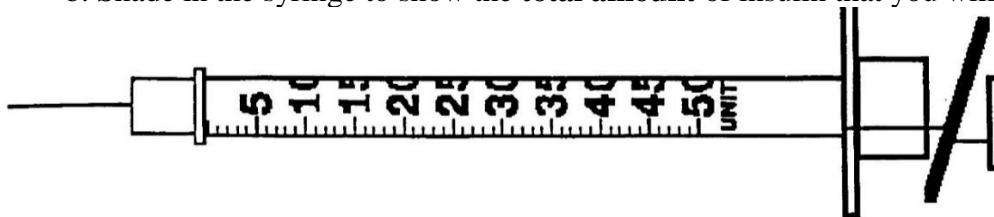
c. If the patient receives 3 prn doses they will have received _____ mL and _____ mg and _____ mcg

14. Your patient is ordered Humulin R 12 units and Humulin N 15 units SUBCUT.

a. Indicate the **total number** of units that you will give to your patient.

I will give _____ to my patient.

b. Shade in the syringe to show the **total amount** of insulin that you will draw up.



15. A client who has type 1 diabetes has been prescribed basal-bolus insulin SUBCUT as follows:
- o Insulin Humulin R 8 units ac breakfast, 6 units ac lunch and 10 units ac dinner.
 - o Insulin Glargine 12 units at bedtime.
 - o Additional bolus insulin (insulin Humulin R) may be given ac meals according to blood glucose (BG) on correction/supplemental scale:

Correctional Scale

BG (mmol/L)	Bolus Insulin (units)
<3.0	Call Health Care Provider
3.0–6.0	0
6.1–10.0	1
10.1–13.0	3
13.1–19.9	5
>19.9	Call Health Care Provider

-
- a. How much correction bolus insulin, if any, should the client receive ac breakfast, if the client's BG is 6.3 mmol/L? How much total insulin should they receive?
- b. How much correction bolus insulin, if any, should the client receive ac lunch, if the client's BG is 5.1 mmol/L? How much total insulin should they receive?
- c. What is the total amount of bolus insulin that the client should receive ac dinner, if the client's BG is 13.3 mmol/L?
- d. The client's BG is 17.8 mmol/L at bedtime. The nurse should administer _____ units of _____ insulin(s).

16. Order: Dalteparin 1 200 units SUBCUT qMonday, Wednesday and Friday, post dialysis.
What volume of Dalteparin is required for a single dose?

Administer: _____

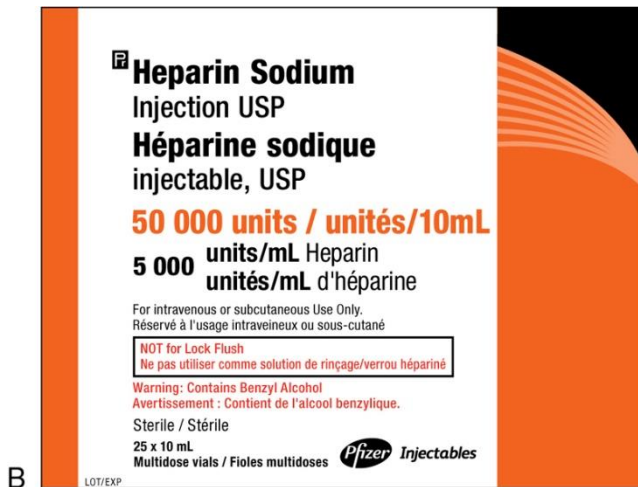
Dalteparin 1 500 units/mL 5 mL vial

What is the dose of the vial?

17. Order: Heparin 4 500 units SUBCUT qam. Supply on hand is Heparin 10 000 units/mL.

What volume will you administer to your patient? Administer _____ mL

18. A patient who is recovering from a deep vein thrombosis is an order for 3 500 units of Heparin SUBCUT stat. Heparin is supplied as label indicates.



B

- What volume is required to administer a single dose?
- What size syringe should the nurse select to administer the ordered dose?

19. A patient weighing 165 lb has suffered a stroke and has the following order:
Heparin 120 units/kg SUBCUT x1. Heparin is supplied in a drug dose strength of 10 000 units/mL.
- What dose does this patient require?
 - What volume will you administer?
20. Your patient has an IV infusing at a rate of 100 mL/h, tubing drop factor is 15 gtt/mL.
What is the rate in gtt/min?
21. The order is to infuse a Normal Saline solution at 45 mL/h, the nurse is using microdrip IV tubing. Calculate the rate in gtt/min.
22. A patient has an order for 3 L of D₅W to administer be administered intravenously over the next 24 hours. IV tubing has a drop factor of 20 gtt/mL.
- What is the infusion rate if the nurse is infusing the solution via gravity?
 - What is the infusion rate if the nurse is infusing the solution using an IV pump?
 - How many g of Dextrose will the patient receive?
23. A patient has the following order: RL IV @ 35 mL/h. Using IV tubing with a drop factor of 20 gtt/mL, calculate the rate in gtt/min.

24. Order: NS IV 1 000 mL over 7 hours, IV tubing has a drop factor of 15gtt/mL

- a. Calculate the flow rate for a gravity infusion.

- b. Calculate the flow rate for an IV pump infusion.

- c. If the nurse hangs a 1 L bag at 1600, at what time would you expect the bag to run empty?

25. A client is prescribed cefazolin 825 mg IV q12h for a post operative infection. Cefazolin is available in 300 mg/mL strength. Administration instructions: Further dilute gentamicin in 50 mL D5W and infuse over 20 minutes. The nurse is using IV tubing with a drop factor of 10 gtt/mL. Show your work.

- a. What volume of gentamicin should the nurse add to the 50 mL D5W minibag?

Answer _____

- b. Calculate the rate of flow to administer the medication using a gravity infusion.

Answer _____

- c. Calculate the rate of flow to administer the medication using an IV pump.

Answer _____

26. A 5-year-old child weights 44 lb and has a temperature of 39.8°C has the following order: Acetaminophen 10 mg/kg/dose q4h prn for temperature $\geq 38.5^{\circ}\text{C}$.

- a. What dose of acetaminophen is required for a single prn dose?
- b. If acetaminophen is available in a strength of 140 mg/4 mL, what volume is required to administer a single dose? Round answer to nearest 10th where applicable.
- c. What is the maximum dose of acetaminophen the child can receive in a 24-hour period?
- d. If the child receives a prn dose at 1625, what is the earliest time they can receive another dose?

27. A child weighs 30 kg has the following order: Gentamicin 30 mg IV q6h. The recommended dosage is 4 to 8 mg/kg/day in 4 divided doses q6h. Show your work

- a. What is the recommended daily dosage range for this child?
- b. What is the recommended single dosage range for this child?
- c. According to the recommendation, is the dosage ordered safe?

28. A child with a seizure disorder has the following order: Phenobarbital 75 mg PO BID. The child weighs 80 lb and the recommended dosage is 6 to 9 mg/kg/day in two divided doses. Show your work.

- a. What is the recommended daily dose range for this child? Round answer to nearest whole number.

- b. What is the recommended single dose range for this child?

- c. According to the recommendation, is the dosage ordered safe?

29. The nurse needs to prepare 0.45 L of a $\frac{2}{3}$ strength Ensure solution. The nurse will add _____ mL of water to _____ mL of full strength Ensure. Show your work.

30. Use the label below to answer questions a - f



From: <http://medlibrary.org/lib/rx/meds/eryped-200/page/4/>

- After reconstitution, what is the volume of the bottle?
- What is the dose of the bottle?
- What volume and type of diluent is required for reconstitution?
- What is the displacement factor?
- If a child has an order for 0.3 g of Erythromycin PO TID, what volume is required for a single dose?
- If the child weighs 30 kg, is the ordered dose safe (0.3 g PO TID)?

30. How many g of NaCl are in 800 mL of NS?

31. How many g of Dextrose are in 1 200 mL of D5W?

32. Use the label below to answer the following questions:

DIN: 02204266 25 mL
Code: L0010036

Sterile / Stérile

DEXAMETHASONE OMEGA

DEXAMETHASONE SODIUM PHOSPHATE INJECTION USP

INJECTION DE PHOSPHATE SODIQUE DE DEXAMÉTHASONE USP

100 mg/25 mL (4 mg/mL)

omega

CORTICOSTEROID **CORTICOSTÉROÏDE**

For IV / IM / Intra-articular / Intralesional / Soft tissue injection. **Pour injection IV / IM / Intra-articulaire / Lésion interne / Tissus mous.**

Multidose Vial. **Fiole multidose.**

Preservative: Benzyl alcohol 10 mg/mL. **Agent de conservation : 10 mg/mL d'alcool benzylique.**

Leaflet should be consulted for detailed directions. Consulter le feuillet pour des directives plus détaillées.

Sensitive to heat. Sensible à la chaleur.

Do not autoclave. Protect from light and freezing. Ne pas autoclaver. Protéger de la lumière et du gel.

Store between 15 and 30°C. Conserver entre 15 et 30°C.

omega C00E1057 / V-01
Montreal, Canada H3M 3A2

LOT: _____

EXP: _____

(01)10801500110360

Courtesy Omega Laboratories Ltd.

- a. What is the drug dose strength/concentration of the drug?
- b. What is the volume of the vial?
- c. Who is the manufacturer of the drug?
- d. How should the medication be stored?
- e. Is this medication available without a prescription?
- f. Order: Dexamethasone 5 mg IM x1. The nurse will administer _____ mL.
- g. Order: Dexamethasone 25 mg IV stat. The nurse will administer _____ mL.
- h. Order: Dexamethasone 3.75 mg SUBCUT daily. The nurse will administer _____ mL.

33. A patient with type 2 diabetes and is on a subcutaneous basal-bolus insulin regimen of rapid-acting insulin analogue (Insulin aspart) before meals and long-acting basal insulin analogue (Insulin NPH) at bedtime. The patient also has a correctional scale of rapid acting insulin (Insulin aspart) to be given with the bolus insulin at mealtimes, as shown below.

Adult Subcutaneous Insulin Order Set				
Monitor Blood Glucose (BG) before breakfast, before lunch, before dinner, at bedtime (2200) & prn				
	Before Breakfast	Before Lunch	Before Dinner	Bedtime (2200)
Bolus Insulin: <input checked="" type="checkbox"/> insulin aspart <input type="checkbox"/> insulin lispro <input type="checkbox"/> insulin Regular	Administer _____8_____units SUBCUT	Administer _____7_____units SUBCUT	Administer _____10_____units SUBCUT	
Basal Insulin: <input checked="" type="checkbox"/> insulin NPH <input type="checkbox"/> insulin detemir <input type="checkbox"/> insulin glargine	Administer _____units SUBCUT		Administer _____units SUBCUT	Administer _____30_____units SUBCUT
Supplemental (Correction) Dose Insulin Algorithm Administer according to Supplemental (correction) dose algorithm: <input checked="" type="checkbox"/> Insulin aspart OR insulin lispro SUBCUT TID before meals Do NOT use Supplemental insulin scale for blood glucose taken at bedtime Notify physician if bedtime BG is greater than 19 mmol/L OR <input type="checkbox"/> Insulin aspart OR insulin lispro SUBCUT _____ (frequency)	Capillary Blood Glucose (mmol/L)		Supplemental Insulin Dose (Give along with routine bolus pre-meal insulin above)	
	Less than 4		Follow protocol for treatment of hyoglycemia	
	_____4__to__6__		_____0__units SUBCUT	
	_____6.1__to__8__		_____1__units SUBCUT	
	_____8.1__to__10__		_____1__units SUBCUT	
	_____10.1__to__12__		_____2__units SUBCUT	
	_____12.1__to__14__		_____3__units SUBCUT	
	_____14.1__to__16__		_____5__units SUBCUT	
	_____16.1__to__19__		_____8__units SUBCUT	
	Greater than 19		Notify Physician	
Printed Name of Prescriber	Signature, Designation		License #	Date YYYY/MM/DD
Samuel Richardson	Samuel Richardson, MD		83-67890	2021/04/11
				Time 1800

- How much correction bolus insulin, if any, should the client receive before breakfast, if the client’s BG is 5.2 mmol/L? How much total insulin should they receive?
- How much correction bolus insulin, if any, should the client receive before lunch, if the client’s BG is 12.8 mmol/L? How much total insulin should they receive?
- How much correction bolus insulin, if any, should the client receive before dinner, if the client’s BG is 16.4 mmol/L? How much total insulin should they receive?
- Your patient is ready for bed. How much long-acting basal insulin analogue (Insulin NPH) will you administer if the blood glucose is 10.2 mmol/L?