Cox College Springfield, MO

Updated 8/2014

Dosage Calculation Competency Level III Practice Sheet

STUDENT NAME:	 _ DATE: _	//
STUDENT I.D. #:	ADVISOR:	

A 95% must be achieved on the competency exam to progress in the Nursing Program. Retesting cannot occur the same day as the failed exam. Each exam may be repeated once within the testing period unless there are no more published dates available. Testing process must be completed within specified testing dates. Failure to pass competency exam will result in following the remediation process as outlined in the student handbook.

Student will be allowed one hour to complete this competency.

If the student leaves during testing the exam will be collected and graded at that point whether completed or not.

A student photo ID is required to take the Dosage Calculation Competency Exam.

Only simple four function calculators are allowed for testing. Students may not share calculators.

DIRECTIONS:

Place all personal items in designated area.

Silence all cell phones.

Calculate the correct dosage and show your work on the exam.

- Failure to label answers will result in missing the problem.
- Failure to show work will result in missing the problem.
- All metric weights should be rounded to the nearest hundredth.
- Rounding should only be done at the last step in the problem.
- Round tablets/capsules to the nearest whole or half tablet (if scored).
- Liquid volumes greater than 1 mL/cc should be rounded to the nearest tenth. If volumes are less than 1 mL/cc, round to the nearest hundredth.
- Drip Rates Calculate drip rates to the tenths place and round off to the nearest whole number
- IV pump drip rates Calculate to the hundredths place and round to the tenths place.

Once exam is complete submit to faculty in room and proceed to designated waiting area to receive notification of score.

THERE ARE **20** QUESTIONS TO THIS TEST.

DO NOT OPEN THIS TEST OR BEGIN UNTIL DIRECTED TO START

For additional practice problems see:

Curren, A.M. (2010). Dimensional Analysis for Meds (4th ed). New York; Delmar.

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Dosage Calculation Competency Math Review

Equivalents:

- 1 kilogram (KG) = 1000 Grams ((GM)
- 1 Gram (GM) = 1000 milligrams (mg)
- 1 mg = 1000 micrograms (mcg)
- 1 Liter (L) = 1000 milliliters (ml)
- 1 ml = 1 cubic centimeter (cc)
- 5 ml = 1 teaspoon (tsp)
- 3 tsp = 1 Tablespoon (Tbsp)
- 30 ml = 1 ounce (oz)
- 65 mg = 1 grain (gr)
- 2.2 pounds (lb) = 1 kilogram (KG)
- 1 lb = 16 oz
- 1 oz = 1/16 lb

COX COLLEGE

Springfield, Missouri Dosage Calculation Competency Practice Test—Level III & IV

1.	Sarah is to receive Cleocin 275 mg IV q 6 hr. The recommended concentration is 5 mg/ml. How many milliliters of solution will you need for an appropriate dilution?
2.	Andrea is to receive medication in 30 ml of fluid over 40 minutes. Using a drip factor of 60 gtts/ml what would your drip rate be?
3.	Stephanie requires a Demerol PCA 7 mg every 10 minutes. You have a Demerol syringe with 400 mg/40 ml available. How many ml will Stephanie receive every 10 minutes?
4.	Deana is to receive Rocephin GM 1 IV q 12 h. The Rocephin is mixed in 150 ml D_5W . Figure the drip rate if it is to infuse over 45 minutes and the drop factor is 15.
5.	Bridget is receiving an Aminophyllin drip at 30 ml per hour. The drug is mixed with one gram in 500 ml. How many milligrams are you giving per hour?

6.	Kelli"s IV is now to have 40mEq KCl added to each 1000 ml solution. There are 600 ml left in the current bag. How many mEq would you add to the current bag?
7.	The order for Nickole is 7 mg/h of continuous morphine sulfate infusion. The solution is prepared as 125 mg morphine in 250 ml D_5W . Calculate the ml per hour needed to deliver the correct drug dosage.
8.	Alysia is receiving a continuous heparin infusion running at 14 ml/h. The solution available is 250 ml containing 25000 units of heparin. Calculate the dosage (units) of heparin she is receiving per hour.
9.	Jennifer's insulin drip is mixed 100 units in 250 ml NS. How many ml/hr will the drip need to run to deliver 4 units per hour?
10	Tracy is receiving lanoxin q8h. She weighs 7.2 KG. Safe dose range for this drug is 0.03 to 0.06 mg/KG/day. What is the maximum safe dose you should deliver q8h?

11. Vanessa is to receive 1000 ml in 8h. You are using 10 gtt/ml tubing. What will your gtt/min be?

12. Peggy weighs 85 lbs and is to receive Rocephin GM 1 q12h. The Rocephin is mixed in 150 ml D₅W. Figure the gtts/min if it is to infuse over 40 minutes using 15 gtt/ml tubing.

13. The physician has ordered 500000 units swish and swallow. Based on the label how much will the nurse administer?



14. A hypotensive client is receiving IV dopamine(400 mg/250ml). The client weighs 72 kg and is receiving 15 ml/hr. How many mcg/kg/min is the client receiving?

	Cindy is to receive 250 mL of NS over the next hour. The tubing drop factor is 15 so what will the gtt/min be?
	You are to administer 12.5 mcg of Synthroid p.o. to Jean. The pharmacy sends Synthroid 0.025 mg per scored tablet. How many tablets should you administer?
	Sherry's IV fluids are to finish over the next 3 hours. She has 500 ml left and the drop factor is 15. What should the drip rate be set at?
	Your client is receiving an IV nitroglycerin gtt. (50 mg/250ml normal saline). The nurse needs to set your volumetric pump at what mL/hour to deliver 10 mcg/min?
19.	The client weights 132 pounds and is receiving a dopamine (400mg/500ml) infusion at 22.5 ml/hr per volumetric pump. How many mcg/kg/min is being given?
20.	A 70 kg hypertensive client is ordered to receive 0.5 mcg/kg/min of IV nitroprusside. The solution strength is 50mg/250ml NS. How many mL/hr will the nurse set the IV pump?

Answers:

- 1. 55 ml
- 2. 45 gtt/min
- 3. 0.7 ml
- 4. 50 gtt/min
- 5. 60 mg
- 6. 24 mEq
- 7. 14 ml/hr
- 8. 1400 units
- 9. 10 ml/hr
- 10. 0.14 mg
- 11. 21 gtts./min
- 12. 56 gtts/min
- 13. 5 mL
- 14. 5.56 mcg/kg/min
- 15. 63 gtts/min
- 16. 0.5 tablets
- 17. 42 gtt/min
- 18. 3ml/hr
- 19. 5 mcg/kg/min
- 20. 10.5 mL/hr

Dosage Comp Level III & Level IV Practice Worksheet Keys worked in Dimensional Analysis

#1.	55 mL								
	Wanted	Recommended	Order			P	nswer		
	m)	concentration	275 m	a	1 v 075		55		
	mL	1 mL 5 mg	275 m	9	1 x 275 5	<u> </u>	55		
		o mg		ļ	Ü				
#2.	45 drops per r								
	Flow rate	Drip factor	Order		00 00		nswer		
	gtt min	60 gtt 1 mL	30 mL 40 mir		60 x 30 1 x 40	<u> </u>	45		
	111111		4 0 IIII	'	1 7 40				
#3.	<mark>0.7 mL</mark>								
	Wanted	Have on hand	Ord		40 -		swer		
	mL	40 mL 400 mg	7 m	g	40 x 7 40).7		
	I	400 mg	l	l	40				
#4. <mark>5</mark>	0 drops per m								
	Flow rate	Drip factor	Order				nswer		
	gtt	15 gtt	150 ml		15 x 150)	50		
	min	1 mL	45 mir	'	1 x 45				
# 5.	60 mg								
	Wanted	conversion		on har	nd	order			Answer
	mg	1000 mg		1 gm		30 mL		0 x 1 x 30	60
		1 gm	50	00 mL			1:	x 500	
#6.	24 mEq								
	Wanted	Order	Solu	ution on				Answer	
	mEq	40 mEq 1000 mL		600 m	L	40 x	600 00	24	
		1000 IIIL				10	00		
#7.	14 mL/ hr		_						
	Wanted mL/hr	Dose on hand 250 mL		Order	1 .	250 v 7	Aı	nswer 14	
		125 mg		7 mg	,	250 x 7 125	<u></u>	14	
		,og	J		l	.20			
#8.	1400 units								
	Wanted	Dose on hand		Order	1 05			nswer	
	units	25000 Units 250 mL	1	4 mL	25	5000 x 14 250	·	1400	
		250 IIIL	Į		ļ	230			
#9.	10 mL/hr								
	Wanted	Dose on hand		Order	1 .	050 4	Aı	nswer	
	mL	250 mL 100 units	4	units		250 x 4 100	<u></u>	10	
		1 100 units	I		I	100			
#10.	0.14 mg								
	Wanted	Order per day	weight		ersion		ncy/dose	l o o o = o =	Answer
	Mg/dose	0.06 mg	7.2 kg		day	8	hr	0.06 x 7.2 x 8	0.14
		1 kg		24	hours			1 x 24	

#1	1		2	1	a	tt	m	nin	
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Flow rate	Drip factor	Order	Conversion		Answer
gtt	10 gtt	1000 mL	1 hr	10x1000x1	20.8
min	1 mL	8 hr	60 min	1x8x60	

#12. 56 gtt/min

9 9 10 11 11 11					
Flow rate	Drip factor	Supplied	Order		Answer
gtt	15 gtt	150 mL	1 gm	15x150x1	56.25
min	1 mL	1 gm	40 min	1x1x40	

#13. 5 mL

Wanted	Have on Hand	Order		Answer
mL	1 mL	500,000	1x500000	5
	100,000		100000	

#14. 5.56 mcg/kg/min

wanted	conversion	Strength of	IV rate	conversion	Weight		Answer
	med						
Mcg	1000 mcg	400 mg	15 mL	1 hr	1	1000x400x15x1x1	5.555
Kg/min	1 mg	250 mL	1 hr	60 min	72 kg	1x250x1x60x72	

#15. 63 gtt/min

Flow rate	Drip factor	Order	Conversion		Answer
gtt	15tt	250 mL	1 hr	15x250x1	62.5
min	1 mL	1hr	60 min	1x1x60	

#16. 0.5 tab or ½ tab

_						
	Wanted	Have on Hand	conversion	Order		Answer
	tabs	1 tab	1 mg	12.5 mcg	1x1x12.5	.0.5
		0.025 ma	1000 mca		0.025x1000	

#17. 42 gtt/min

Flow rate	Drip factor	Order	Conversion		Answer
gtt	15 gtt	500 mL	1 hr	15x500x1	41.666
min	1 mL	3 hr	60 min	1x3x60	

#18. 3 mL/hr

wanted	Strength of med	conversion	order	conversion		Answer
mL	250 mL	1 mg	10 mcg	60 min	250x1x10x60	3
hr	50 mg	1000 mcg	Kg/min	1 hr	50x1000x1	

#19. **5 mcg/kg/min**

wanted	conversion	Strength of med	IV rate	conversion	Wt	conversion		Answer
Mcg	1000 mcg	400 mg	22.5 mL	1 hr		2.2 #	1000x400x22.5x1x2.2	5
Kg/min	1 mg	500 mL	1 hr	60 min	132#	1 kg	1x500x1x60x132x1	

#20. 10.5 mL/hr

wanted	Strength of med	conversion	order	conversion	weight		Answer
mL	250 mL	1 mg	0.5 mcg	60 min	70 Kg	250x1x0.5x60x70	10.5
hr	50 mg	1000 mcg	Kg/min	1 hr		50x1000x1	