Answers to Practice Problem Set #3

1. A physician has ordered a dobutamine drip for a 194-pound patient. The physician wishes the drip started at 5.0mcg/kg/minute. Your pharmacy's standard dobutamine concentration is 250mg in 500ml D5W. At what infusion rate should the nurse program the pump to run?

53 ml/hr

$$\textbf{5.0}\ \frac{\mu g}{kg \cdot min} \times 194\ lb \times \frac{1\ kg}{2.2\ lb} \times \frac{60\ min}{hr} \times \frac{500 ml}{250\ mg} \times \frac{1\ mg}{1000 \mu g} = 52.9 \approx 53\ \frac{ml}{hr}$$

2. The US RDA for calcium is 1200mg for ages 11-24 and 800mg thereafter. A 28-year old patient wants to increase her calcium intake by taking a calcium supplement. You determine she receives approximately 300mg/day via diet. Please recommend a product and dose for her from the following products you carry in your pharmacy:

Tums (calcium carbonate 500mg) **(500mg)(0.4) = 200mg calcium/tablet**
Cal-Plus (calcium carbonate 1.5g) **(1.5 g)(0.4) = 600mg calcium/tablet**
generic calcium carbonate 650mg **(650mg)(0.4) = 260mg calcium/tablet**

Calcium carbonate contains 40% calcium.
800mg/day - 300mg = 500mg/day calcium needed to supplement diet

I recommend **3** tablets of **Tums** daily. **(total :600mg extra calcium daily)**
or
I recommend **1** tablet of **Cal-Plus** daily. **(total 600mg extra calcium daily)**
or
I recommend **2** tablets of **generic calcium carbonate** daily. **(total 520mg extra Ca daily)**

3. You note in the graphics portion of a chart that a patient had an axillary temperature of 38.6°C. The patient has a standing order for Tylenol 325mg po prn oral temp >100.5°F. Please determine this patient's temperature in °F, oral equivalent, and recommend whether the Tylenol should be given or not.

102.5°F, oral equivalent

X give Tylenol _____don't give Tylenol

$$\textbf{°F} = \frac{38.6°C}{5} \times 9 + 32 = 101.5°F \text{ axillary} = 102.5°F \text{ oral}$$

4. A patient has been receiving methylprednisolone 40mg IV q6h while in the hospital. The physician would like to convert the patient to an equivalent oral dose of prednisone (4mg of methylprednisolone equals 5mg prednisone) for the patient to receive after discharge. Prednisone is usually dosed once or twice daily. At what initial dose will you recommend the physician begin the patient?

prednisone **100** mg **twice** a day. **(you could also put 200mg once daily as well)**

$$\frac{40\ mg\ methylpred}{dose} \times \frac{4\ doses}{day} \times \frac{5\ mg\ prednisone}{4\ mg\ methylpred} = 200mg\ prednisone\ daily$$

5. The physician would like to taper the prednisone for the patient in question 4 by approximately 20% daily until the patient is off the medication. Please show the dosage regimen you will recommend. You do not need to use all of the blanks below if you don't feel that you need them.

	mg/day	# 10mg tabs	mg/day - 20%	rounded (to simplify)
day 1: **100** mg **2** times daily.	200	20	160	160
day 2: **80** mg **2** times daily.	160	16	128	120
day 3: **60** mg **2** times daily	120	12	96	100
day 4: **50** mg **2** times daily	100	10	80	80
day 5: **40** mg **2** times daily	80	8	64	60
day 6: **30** mg **2** times daily	60	6	51	40
day 7: **20** mg **2** times daily	40	4	32	20
day 8: **10** mg **2** times daily	20	2	16	10
day 9: **10** mg **1** times daily	10	1	then off	
	total tabs:	79		

note: there are several different scenarios that would be equally acceptable. This is merely one illustration of an acceptable scenario.

6. You carry prednisone 1mg, 5mg, 10mg, 20mg, and 50mg oral tablets in your pharmacy. Which product will you dispense for the patient in questions 4 and 5 and how many tablets will you dispense?

I will dispense 79 tablets of the 10 mg strength.

note: try to avoid having the patient cut tablets in half, whenever possible. Also try to keep number of tablets taken daily at the smallest number possible.

7. Imipenim/cilastatin (trade name: Primaxin) is a medication reserved for severe infections in hospitalized patients. A 165-pound, 5'6", 82-year-old female patient with a serum creatinine of 1.4mg/dl was prescribed imipenim 500mg IV q6h (the normal dose). Facts and Comparisons makes the following recommendations for patients with renal insufficiency:

CrCl (ml/min/m2)	dose
31-70	500mg IV q8h
21-30	500mg IV q12h
6-20	250mg IV q12h

Please calculate this patient's creatinine clearance and recommend any needed dosing adjustments.

CrCl: **29** ml/minute $\quad \frac{(140 - 82)\,(59)}{(85)(1.4)} = 29$ **ml/min**

I recommend imipenim **500** mg IV **q 12 h**.

8. Inulin is a solution commonly used to measure glomerular filtration rate. Because it tends to crystallize, it is often necessary to place it in a warm water bath prior to use. Package literature recommends placing it in a 70°C water bath for 30 minutes. Your water bath measures in °F. What temperature will you set it to?

158 °F $\quad \frac{(70° C \times 9)}{5} + 32 = 158° F$

9. A physician has ordered Darvocet N-100, which contains 650mg acetaminophen and 100mg propoxyphene napsylate in each tablet. The directions the physician wrote on the prescription are: i-ii po q4-6h prn pain. The maximum recommended amount of acetaminophen that a patient can safely ingest in a day is 4g. Are the physician's directions safe for the patient? If not, please indicate what you would recommend the directions be changed to.

_____yes

__X__ no; change directions to: **1** tablet every **4-6** hours prn pain OR **2** tabs every **8** hours prn pain

max daily amount of acetaminophen (APAP) with these directions is:
2 tabs x 6 doses x 650mg APAP = 7800mg APAP. This exceeds 4g daily
dose day tab

4 g x 1 tab x 1000mg x 1 dose = 3 doses
day 650 mg g 2 tabs day
OR
4 g x 1 tab x 1000mg x 1 day = 1 tab
day 650 mg g 6 doses dose

10. A patient has 50mEq of sodium chloride ordered to be added to a TPN. How many milliliters of a 23.4% sodium chloride solution will you add to the TPN? (MW Na 23, Cl 35.5)

12.5 ml $\quad \#\text{ ml} = \frac{100\text{ml}}{23.4\text{ g}} \times \frac{1\text{ g}}{1000\text{mg}} \times \frac{58.5\text{mg}}{\text{mEq}} \times 50\text{ mEq} = 12.5\text{ ml}$