Medication Calculation Worksheet #3 – Answers

1. Medication on hand: Insulin 75 units in 125 mL. How many units per mL? **0.6**

   75 u/ 125 mL = 0.6 u/mL

2. Medication order: Unipen 750 mg IM q6h. Available: Unipen 1 g/2.5 mL after it has been reconstituted. How many mL of the reconstituted solution will you administer? Round answer to the nearest tenth. **1.9**

   750/ 1,000 x 2.5 =1.875 = 1.950 = 1.9

3. Administer 3.5 mL of aminophylline liquid (250 mg/2.5mL) PO for pain now. The nurse will administer ____ milligrams. **350**

   3.5 mL / 2.5 mL = 1.4 mL x 250 mg = 350 mg

4. Order: Administer cephazolin 60 mg IM daily. Available is a 5 mL vial of cephazolin 100 mg/mL. The nurse should administer how many mL? Do not round. **0.6**

   60 mg/ 100 mg = 0.6 mL

5. Phenytoin (Dilantin), 7,000,000 mcg PO, is ordered to be given through a nasogastric tube. Phenytoin is available as 5,000 mg / 18 mL. How much would the nurse administer? Round to a whole number. **25 mL**

   5,000 mg /7,000 mg x 18 mL = 25.2 = 25 mL

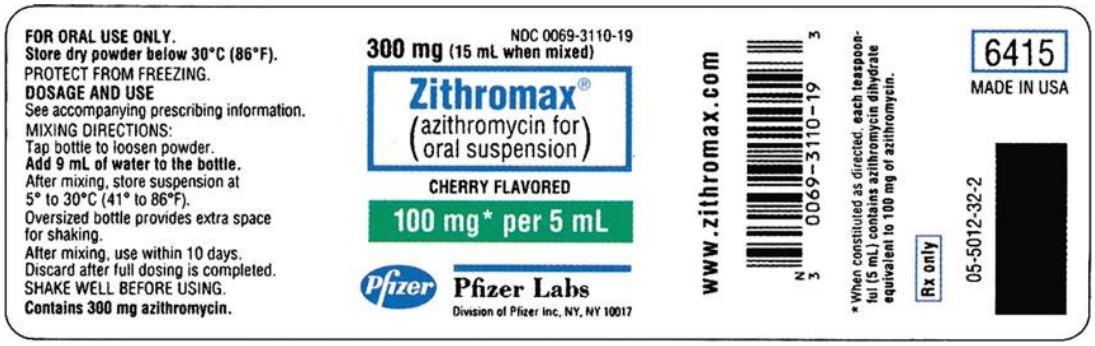
6. Solumedrol 1.5 mg/kg is ordered for a patient weighing 74.8 lb. Solumedrol is available as 125 mg / 2 mL. How many mL should the nurse administer? Round answer to the 10th. **0.8**

1.5 x 34 (74.8/2.2) = 51 mg/125 mg x 2 mL = 0.816 = 0.8 mL

7. Ordered Lasix 12,000,000 mcg IV push now. Available: 0.025 kg in 15 mL. How much will the nurse draw up? Do not round. **7.2 mL**

12,000,000 = 0.012 kg /0.025 kg =0.48 kg x 15 mL = 7.2 mL

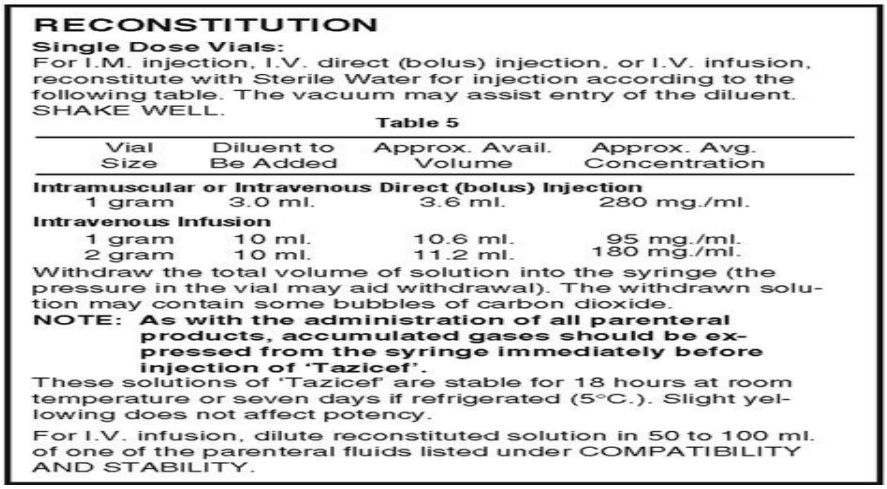
8. Order: Zithromax 250 mg p.o. daily. Available:



a. How many milliliters of diluent must be added to the bottle? **9 mL**
b. What is the final concentration of the prepared solution? **300 mg/15mL; 100 mg/5 mL**
c. How many mL should the nurse administer? Do not round. **12.5 mL**

250 mg/300 mg x 15 mL = 12.5 mL

9. Scenario**:** Order: Tazicef 250 mg IM q8h. The nurse reconstituted the medication (Tazicef) with 10.6 mL of diluent and administered 2.6 mL to the patient.



RECONSTITUTION

Single Dose Vials:

For I.M. injection, I.V. direct (bolus) injection, or I.V. infusion, reconstitute with Sterile Water for injection according to the following table. The vacuum may assist entry of the diluent. SHAKE WELL.

Table 5

Vial Size	Diluent to Be Added	Approx. Avail. Volume	Approx. Avg. Concentration
Intramuscular or Intravenous Direct (bolus) Injection			
1 gram	3.0 ml.	3.6 ml.	280 mg./ml.
Intravenous Infusion			
1 gram	10 ml.	10.6 ml.	95 mg./ml.
2 gram	10 ml.	11.2 ml.	180 mg./ml.

Withdraw the total volume of solution into the syringe (the pressure in the vial may aid withdrawal). The withdrawn solution may contain some bubbles of carbon dioxide.

NOTE: As with the administration of all parenteral products, accumulated gases should be expressed from the syringe immediately before injection of 'Tazicef'.

These solutions of 'Tazicef' are stable for 18 hours at room temperature or seven days if refrigerated (5°C.). Slight yellowing does not affect potency.

For I.V. infusion, dilute reconstituted solution in 50 to 100 ml. of one of the parenteral fluids listed under COMPATIBILITY AND STABILITY.

a. What error occurred here? **2.6 mL (IV) instead of 0. 75 mL IM - three x the IM dose**
b. What concentration should have been made? **280 mg/mL**

10. Medication order: Heparin 25,000 units in 500 mL, infuse 4,000 units/hr. How many mL per hour do you need to infuse to deliver 4,000 units/hr? **80 mL/hr**

4,000 u / 25,000 u = 0.16 u x 500 mL = 80 mL

11. Medication order: Aminophylline 1 gram in 250 mL, infuse 25 mg/hr. How many mL per hour must you infuse to deliver 25 mg/hr? Round answer to the 10th. **6.3 mL/hr**

25 mg /1,000 mg x 250 mL = 6.25 = 6.3 mL

12. Administer 5 milligrams of acyclovir in 75 milliliters of normal saline over 15 minutes. The nurse will set the IV pump at how many mL/hour. **300 mL/hr**

75 mL x 4 = 300 mL/hr

13. A nurse is administering an antibiotic via IVPB. The pharmacy dispenses 150 milligrams (mg) of antibiotic mixed in 250 milliliters (mL) of normal saline to infuse over 30 minutes. The nurse will set the infusion pump at _____ mL/hour to administer the IVPB. **500 mL/hr**

250 mL x 2 = 500 mL/hr

14. Give patient 24.4 mg of dopamine in 363 mL of D5W to be infused at a rate of 9,818 mcg/hr. Calculate the flow rate in mL/hr. Round to a whole number. **146 mL/hr**

9.8 mg/24.4 mg x 363 mL = 145.795082 = 146 mL/hr

15. Give patient 10.1 mg of dopamine in 251 mL of D5W to be infused at a rate of 6 mg/hr. Calculate the flow rate in mL/hr and round to the nearest tenth. **149.1 mL/hr**

6 mg/10.1 mg x 251 mL = 149.1089.....

16. Order: 10 units of Humulin regular insulin per hour. 50 units of insulin is placed in 250 mL NS. How many mL/hr should the IV infuse at? **50 mL/hr**

10 u /50 u = 0.2 u x 250 mL = 50 mL

17. A patient is receiving Pronestyl 60 mL/hr. The solution available is Pronestyl 2 g in 500 mL D5W. Calculate what the patient will receive mg/hr and mg/min

a. 60 mL/500 mL x 2,000 mg = **240 mg/hr**

b. 240 mg/60 = **4 mg/min**

18. Medication order: Lidocaine 8 mg in 250 mL, infuse at 10 mcg/min. How many mL per hour do you need to infuse to deliver 10 mcg/min? Round answer to the 10th. **18.8 mL/hr**

10 mcg/8,000 mcg = 0.00125 mcg x 250 mL = 0.3125 x 60 min = 18.75 = 18.8

19. From 0700 to 1600 the nurse calculates the patient's total intravenous fluid intake as [1] milliliters. An IV is infusing at 150 mL/hour. At 1200, the patient will receive an IVPB of 75 mL for 30 minutes. **1,350**

150 mL x 5 (7 to 12) =750 mL; add 75 + 75 (12 to 1300) = 750 + 150 = 900; 150 x 3 (1300 to 1600) = 450 mL = 750 + 150 + 450 = 1,350 mL

OR

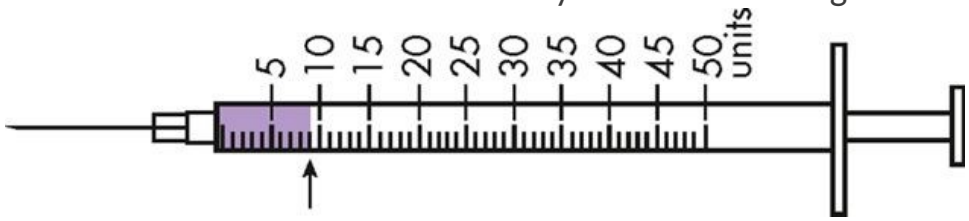
0700-1600 is 9 hours

9 hrs – 30 mins = 8 hrs and 30 mins (8.5)

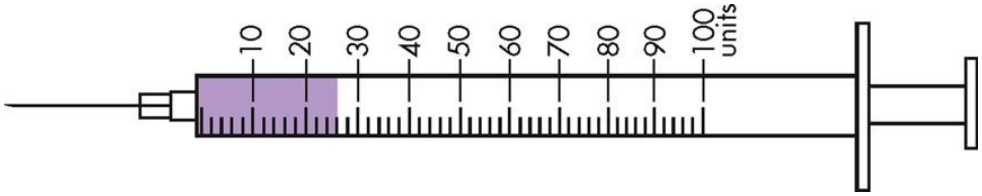
8.5 X 150 ml/hr = 1,275 mL

1,275 mL + 75 mL (IVPB) = 1,350

20. Order: Novolin R U-100 9 units subcut daily. Shade the dosage in on the syringe. **9**



21. How many units are measured? **26**



22. Administer an IV medication of 50 mL NS in 20 min. Drop factor: 60 gtt/mL. At what rate in gtt/min should the IV be regulated? **150 gtt/min**

50/20=2.5 x 60 = 150

23. Administer 1,000 mL D5W to infuse in 12 hr. Drop factor: 20 gtt/mL. At what rate in gtt/min should the IV be regulated? Round answer to a whole number. **28 gtts**

1,000 mL /60 min = 16.666… x 20 = 333.333…/12 hr = 27.777… = 28

24. Ativan 3 mg IV push stat. Available: Ativan 4 mg per mL. The literature states not to exceed 2 mg/min.

- How many mL of Ativan will you prepare? (Express in hundredths.) **0.75 mL**

  3 mg /4 mg = 0.75 mL
- How many min would administer the medication as ordered? **1 ½ min**

  3 mg /2 mg = 1.5 min