Medication Calculation Worksheet #1

1. An individual is taking cough suppressant that contains codeine 10 mg in 5 mL. If the individual took 12 tsp of the medication during a 24-hour period, how many milligrams of codeine would have been taken?

2. The nurse is to give 10 mcg/kg/min of a medication. The patient weighs 80 kg. How many mcg will the nurse give in 15 minutes?

3. Calculate the individual dose in mg a medication to be administered in six divided doses if a patient weighs 35 pounds and is to be given 40 mg/kg/day. Round kg to nearest 10$^{th.}$

4. The medication order is to administer naloxone (Narcan) 1.5 mcg/kg STAT. The child weighs 36.3 pounds. How many mg of Narcan will the nurse give to the child? Round answer to the nearest hundredth.

5. An individual is taking an antibiotic that contains penicillin (PCN) 180 mg in 5 mL. If the individual took 21 tsp of the medication in 7 days, how many milligrams of PCN would have been taken?

6. Medication order: Cephalexin 375 mg PO tid. How many grams will the patient receive each 24 hours? Round to a whole number.

7. Medication order: Unipen 750 mg IM q6h. The label reads to add 4 mL sterile water. The total concentration will equal 1 g/2.5 mL. How many mL of the reconstituted solution will you administer per dose and per day? Round to the 10th.

8. Medication order: Zaroxolyn 7.5 mg PO bid. Available: Zaroxolyn 5 mg tablets. How many tablets will you administer per dose and per day?

9. Medication order: Erythromycin 125 mg via gastric tube tid. Available: Erythromycin 250 mg/5 mL. How many mL will you administer per day?

10. Medication order: Capoten 100 mg. Available: Capoten 0.1 g tablets. How many tablets will you administer?

11. Change 128 oz to L. Round final answer to a whole number.

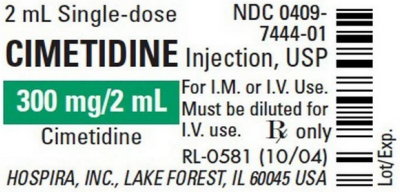
12. Penicillin G Procaine (Wycillin) contains 300,000 units/mL. How many units would there be in 2.5 mL?

13. The pre-operative order is for atropine sulfate 0.15 mg now. The supply of atropine sulfate is 0.4 mg/mL. How many mL will you prepare? Round answer to the 10^{th}.

14. Medication order: Atropine 0.4 mg Sub-Q now. Drug available: atropine 5 mg per 10 mL. How many mL will you administer?

15. Administer diphenhydramine 25 mg – 50 mg/kg/q 4 hours PRN allergic rhinitis. The patient weighs 130 lbs. What is the minimum and maximum amount in mgs that can be given per dose? (Round kg to 10th)

16. Administer Cimetidine 150 mg q 6 hrs by mouth for gastritis. How many mL will the nurse administer per day?



17. Administer 10 mg of a medication by mouth QID. Instructions on the 0.25 G label say to reconstitute with water to make a concentration of 0.5 g/3 mL. How many mL should the nurse administer per dose? Do not round.

18. A pediatric patient is prescribed to receive 5 mg/kg/day of a medication, divided in two equal doses. If the child weighs 48 pounds, how much medication should the nurse administer? Round kg to 10th. Do not round final answer.

19. Administer enoxaparin (Lovenox) 1 mg/kg daily. The patient weighs 187 lbs. This drug is available in a concentration of 30 mg/0.3 mL. How much should the nurse administer in mL? Do not round.

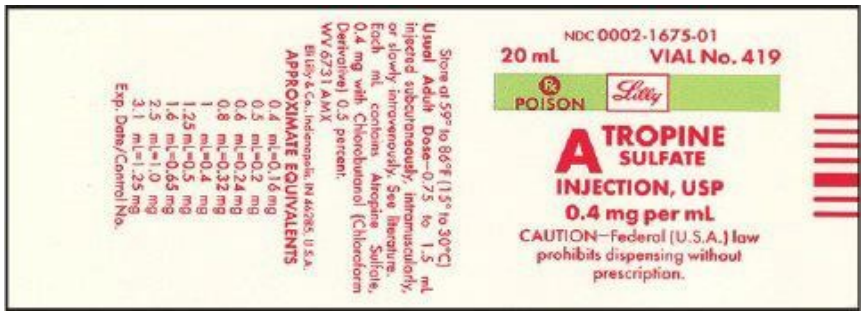
20. The physician orders ampicillin 100 mg/kg/ dose for a newly admitted neonate. The neonate weighs 1,350 g. How many milligrams should the nurse administer?

21. A patient with hypertensive emergency is being treated with sodium nitroprusside. Available is 50 mg/250 mL. How many micrograms of are in each milliliter?

22. Administer ampicillin sodium 125 mg IVP (IV Push) every 6 hours. Reconstitute with 7.4 mL of bacteriostatic water to yield 1 g/7.4 mL. The nurse should draw up how many mL per dose? Round answer to the 10th.

23. Administer digoxin 8 mcg/kg/bid po. The patient weighs 7.2 kg. How many mcg of digoxin should be administered to the patient at per dose? Per day? Do not round.

24. Administer Atropine sulfate, 0.6 mg IM. How many mL should the nurse administer? Do not Round.



Medication Calculation Worksheet #1 - Answers

1. An individual is taking cough suppressant that contains codeine 10 mg in 5 mL. If the individual took 12 tsp of the medication during a 24-hour period, how many milligrams of codeine would have been taken? **120 mg**

   10 mg x 12 = 120

2. The nurse is to give 10 mcg/kg/min of a medication. The patient weighs 80 kg. How many mcg will the nurse give in 15 minutes? **12,000 mcg**

   10 x 80 = 800 x 15= 12,000

3. Calculate the individual dose in mg a medication to be administered in six divided doses if a patient weighs 35 pounds and is to be given 40 mg/kg/day. Round kg to nearest 10$^{th.}$ **106**

   40 x 15.9 /6 = 106 mg

4. The medication order is to administer naloxone (Narcan) 1.5 mcg/kg STAT. The child weighs 36.3 pounds. How many mg of Narcan will the nurse give to the child? Round to the nearest 100th. **0.02**

   1.5 mcg = 0.0015 mg x 16.5 kg = 0.02 = 0.02 mg

5. An individual is taking an antibiotic that contains penicillin (PCN) 180 mg in 5 mL. If the individual took 21 tsp of the medication in 7 days, how many milligrams of PCN would have been taken? **3,780**

   180 mg x 21 = 3,780 mg

6. Medication order: Cephalexin 375 mg PO tid. How many grams will the patient receive each 24 hours? Round to a whole number. **1**

   375 mg x 3 = 1,125 mg = 1.1 g = 1 gm

7. Medication order: Unipen 750 mg IM q6h. The label reads to add 4 mL sterile water. The total concentration will equal 1 g/2.5 mL. How many mL of the reconstituted solution will you administer per dose and per day? Round to the 10th.

   750 mg/1000 mg x 2.5 mL = **1.9 mL/dose**; **7.6 mL/day**

8. Medication order: Zaroxolyn 7.5 mg PO bid. Available: Zaroxolyn 5 mg tablets. How many tablets will you administer per dose and per day? **1.5 tabs per dose; 3 tabs/day**

   7.5 mg/5 mg = 1.5 tablets per dose; 3 tablets/day

9. Medication order: Erythromycin 125 mg via gastric tube tid. Available: Erythromycin 250 mg/5 mL. How many mL will you administer per day?

   125/250 x 5 = **2.5 mL/dose, 7.5 mL/day**

10. Medication order: Capoten 100 mg. Available: Capoten 0.1 g tablets. How many tablets will you administer? **1**

    0.1 g = 100 mg

11. Change 128 oz to L. Round final answer to a whole number. **4 L**

    128 x 30 mL (1 oz) = 3,840 mL = 4L

12. Penicillin G Procaine (Wycillin) contains 300,000 units/mL. How many units would there be in 2.5 mL? **750,000 units**

    300,000 u x 2.5 mL = 750,000 units

13. The preoperative order is for atropine sulfate 0.15 mg now. The supply of atropine sulfate is 0.4 mg/mL. How many mL will you prepare? Round answer to the 10^{th}. **0.4 mL**

    0.15 mg/0.4 mg x 1 mL = 0.375 = 0.4 mL

14. Medication order: Atropine 0.4 mg Sub-Q now. Drug available: atropine 5 mg/10 mL. How many mL will you administer? **0.8 mL**

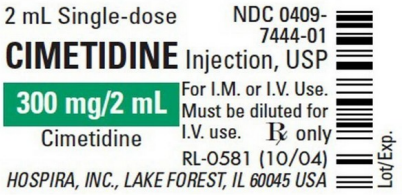
    0.4 mg/ 5 mg x 10 mL = 0.8 mL

15. Administer diphenhydramine 25 mg – 50 mg/kg/q 4 hours PRN allergic rhinitis. The patient weighs 130 lbs. What is the minimum and maximum amount in mgs that can be given per dose? (Round kg to 10th)

Answer: 1,477.5 mg (minimum) to 2,955 mg (maximum)

This question is a range order: 130/2.2 = 59.1 kg; 59.1 x 25 mg = 1,477.55 mg and 59.1 x 50 mg = 2,955 mg

16. Administer Cimetidine 150 mg q 6 hrs by mouth for gastritis. How many mL will the nurse administer per day? **Answer: 0 mL**



17. Administer 10 mg of a medication by mouth QID. Instructions on the 0.25 G label say to reconstitute with water to make a concentration of 0.5 g/3 mL. How many mL should the nurse administer per dose? Do not round. **Answer: 0.06 mL**

10 mg/500 mg x 3 mL = 0.06 mL

18. A pediatric patient is prescribed to receive 5 mg/kg/day of a medication, divided in two equal doses. The child weighs 48 pounds. How many mg should the nurse administer? Round kg to 10th. Do not round final answer.

Answer: 54 mg

48/2.2 = 21.8 kg; 5 x 21.8 kg = 109/2 doses = 54.5 mg

19. Administer enoxaparin (Lovenox) 1 mg/kg daily. The patient weighs 187 lbs. This drug is available in a concentration of 30 mg/0.3 mL. How much should the nurse administer in mL? Do not round. **Answer: 0.85 mL**

187 lbs/2.2 = 85; 1mg x 85 = 85mg. 85 mg/30 mg x 0.3 mL =0.85 mL

20. The physician orders ampicillin 100 mg/kg/ dose for a newly admitted neonate. The neonate weighs 1,350 g. How many milligrams should the nurse administer? **Answer: 135**

1,350 g = 1.35 kg x 100 mg= 135 mg

21. A patient with hypertensive emergency is being treated with sodium nitroprusside. Available is 50 mg/250 mL. How many micrograms of are in each milliliter? **Answer: 200**

50 mg = 50,000 mcg/250 mL = 200 mcg

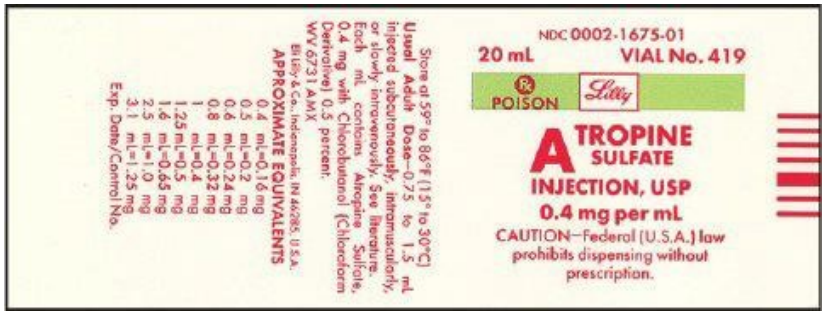
22. Administer ampicillin sodium 125 mg IVP (IV Push) every 6 hours. Reconstitute with 7.4 mL of bacteriostatic water to yield 1 g/7.4 mL. The nurse should draw up how many mL per dose? Round answer to the 10th. **Answer: 0.9**

125 mg/1,000 mg x 7.4 mL = 0.925 = 0.9 mL

23. Administer digoxin 8 mcg/kg/bid po. The patient weighs 7.2 kg. How many mcg of digoxin should be administered to the patient at per dose? Per day? Do not round. **Answer: 57.6 mcg/dose and 115.2 mcg/day**

8 x 7.2 = 57.6 mcg (per dose) x 2 = 115.2 mcg (per day)

24. Administer Atropine sulfate, 0.6 mg IM. How many mL should the nurse administer? Do not round. **Answer: 1.5 mL**



0.6 mg /0.4 mg x 1 mL = 1.5 mL

Calculation Worksheet #2

1. The IV order is for D_5W to infuse at 100 mL/hr. The drop factor is 10 gtt/mL. How many drops per minute (gtt/min) should the pump be set to run? Round final answer to whole number.

2. Medication order: Rocephin 1 g IV every 12 hours over 30 minutes. Available: rocephin 1 g in 150 mL NS. At what rate should the nurse set the pump?

3. Medication order: Vistaril 20 mg IM q4h PRN for nausea. The 10 mL vial that you have available is labeled 25 mg/mL. How many mL should the nurse give? Do not round.

4. Medication order: Haldol 3 mg IM q6h PRN for agitation. The 1 mL vial that you have available is labeled 5 mg/mL. How many mL should the nurse give? Do not round.

5. Medication order: heparin 5000 units subQ every 12 hours. Drug available: heparin 10,000 units/2 mL. How many mL should the nurse administer for the day?

6. A patient has an order for 200 mg q8h of cimetidine (Tagamet) to be administered intramuscularly. The vial of 8 mL contains 300 mg per 2 mL. How many mL should the nurse give q8h? Round to the 10^{th}.

7. Medication order: Garamycin 80 mg IVPB over 30 minutes. Available: Garamycin (gentamicin sulfate) 80 mg in 50 mL of D_5W. Calculate the flow rate in mL/hr.

8. A patient's IV is infusing at 125 mL/hr. How long will it take 1500 mL to infuse?

9. Medication order: cephtriaxone 2 g IV every 12 hours over 30 minutes. Available: cephtriaxone 2 g in 250 mL NS. At what rate should the nurse set the pump?

10. An infusion pump is set to administer 75 mL/hr to a patient. How many hours will it take for the patient to receive 600 mL of fluid?

11. A patient is to receive lidocaine hydrochloride (Xylocaine) 100 mg as an intravenous bolus. The Xylocaine is labeled 20 mg/mL. How many milliliters should be administered?

12. Medication order: 50 mg/kg/day. Patient weight: 85.8 pounds. The patient should receive ____ mg/day.

13. Medication order: Amoxicillin 2.5 mL every 8 hours. Available is Amoxicillin 250 mg/5mL. The nurse should administer how many mg for the day?

14. Medication order: Ondansetron 2 mg – 4 mg/kg/Q 4 hours po PRN nausea. The patient weighs 66 lbs. What is the minimum amount of medication in grams that should be administered every 4 hours?

15. Medication order: 5 mL of normal saline is added to a vial of Lasix 20 mg/5 mL. How many milligrams of Lasix are in each milliliter of fluid?

16. Medication order: administer 1,000 mL of normal saline IV over 6 hours. At which rate should the nurse administer the medication? Round answer to a whole number.

17. Administer gentamicin 1 G/100 mL IVPB over 1 hr. At what rate should the nurse administer the medication per hour and minute? Round minute answer to the 10th.

18. Administer 1,000 mL D5W to at a rate of 125 mL/hour. How many hours should it take to infuse 1 L?

19. Administer heparin sodium 1,300 units/hour by IV. The pharmacy prepares the medication and delivers an IV bag 20,000 units/250 mL D5W. At what rate should the nurse administer the medication? Round answer to the 10th.

20. Administer D5 ½ at 100 mL/hour. The drop factor is 15 gtt/mL. How many drops per minute (gtt/min) should the pump be set to run?

21. Medication order: Administer an IV at 30 mL/hour. The IVAC indicates that 270 mL are remaining in the present IV bag. The time is exactly 10:30 am. At what time should the infusion be completed?

22. Administer Magnesium Sulfate 2 gm/ hour IV. Sent from the pharmacy is Magnesium Sulfate 40 gm/1000 mL. The nurse should set the pump at _____mL/hour.

23. Administer Ritodrine IV 50 mcg/min. The pharmacy sent Ritodrine 150 mg premixed in 500 mL D5W. The nurse should set the IV pump at _____mL/hour.

24. Administer Keflex 2.0 g /100 mL in D5W in thirty minutes. The nurse should set the IV pump at _____mL/hour.

25. Administer 1.5 L Lactated Ringers in 12 hours. Calculate the rate of flow if the drop factor is 20 gtt/mL. Round final answer to a whole number.

Calculation Worksheet #2 - Answers

1. The IV order is for D_5W to infuse at 100 mL/hr. The drop factor is 10 gtt/mL. How many drops per minute (gtt/min) should the pump be set to run? Round final answer to whole number. **17 gtt/min**

   100/60 x 10 = 16.666…7 = 17 gtt/min

2. Medication order: rocephin 1 G IV every 12 hours over 30 minutes. Available: rocephin 1 G in 150 mL NS. At what rate should the nurse set the pump? **300 mL**

   150 mL x 2 = 300 mL/hr

3. Medication order: Vistaril 20 mg IM q4h PRN for nausea. The 10 mL vial that you have available is labeled 25 mg/mL. How many mL should the nurse give? Do not round. **0.8 mL**

   20 mg /25 mg = 0.8 mL

4. Medication order: Haldol 3 mg IM q6h PRN for agitation. The 1 mL vial that you have available is labeled 5 mg/mL. How many mL should the nurse give? Do not round. **0.6 mL**

   3 mg / 5 mg = 0.6 mL

5. Medication order: heparin 5,000 units subQ every 12 hours. Drug available: heparin 10,000 units/2 mL. How many mL should the nurse administer for the day? **2 mL**

   5,000 / 10,000 x 2 mL = 1 mL x 2 = 2 mL

6. A patient has an order for 200 mg q8h of cimetidine (Tagamet) to be administered intramuscularly. The vial of 8 mL contains 300 mg per 2 mL. How many mL should the nurse give q8h? Round to the 10th. **1.3 mL**

    200 mg/300 mg = 0.666 …7 = 0.7 x 2 = 1.3 mL

7. Medication order: Garamycin 80 mg IVPB over 30 minutes. Available: Garamycin (gentamicin sulfate) 80 mg in 50 mL of D_5W. Calculate the flow rate in mL/hr. **100 mL**

    50 mL x 2 = 100 mL

8. A patient's IV is infusing at 125 mL/hr. How long will it take 1,500 mL to infuse? **12 hrs**

    1,500 mL/ 125 mL = 12 hrs

9. Medication order: cephtriaxone 2 g IV every 12 hours over 30 minutes. Available: cephtriaxone 2 g in 250 mL NS. At what rate should the nurse set the pump? **500 mL**

    250 mL x 2 = 500 mL

10. An infusion pump is set to administer 75 mL/hr to a patient. How many hours will it take for the patient to receive 600 mL of fluid? **8hrs**

    600 mL/ 75 mL = 8 hrs

11. A patient is to receive lidocaine hydrochloride (Xylocaine) 100 mg as an intravenous bolus. The Xylocaine is labeled 20 mg/mL. How many milliliters should be administered? **5 mL**

    100 mg / 20 mg = 5 mL

12. Medication order: 50 mg/kg/day. Patient weight: 85.8 pounds. The patient should receive _____ mg/day. **1,950 mg**

85.8/2.2 = 39 lbs 50 mg x 39 = 1,950 mg

13. Medication order: Amoxicillin 2.5 mL every 8 hours. Available is Amoxicillin 250 mg/5 mL. The nurse should administer how many mg for the day? **375 mg**

2.5 mL/5 mL = 0.5 x 250 mg = 125 mg x 3 = 375 mg

14. Medication order: Ondansetron 2 mg – 4 mg/kg/Q 4 hours po PRN nausea. The patient weighs 66 lbs. What is the minimum amount of medication in grams that should be administered every 4 hours **0.06 gm**

66/2.2= 30 lbs; 2 mg x 30 = 60 mg = 0.06 gm

15. Medication order: 5 mL of normal saline is added to a vial of Lasix 20 mg/5 mL. How many milligrams of Lasix are in each milliliter of fluid? **2 mg**

5 + 5 = 10 mL; 20 mg/ 10 mL = 2 mg

16. Medication order: administer 1,000 mL of normal saline IV over 6 hours. At which rate should the nurse administer the medication via a pump? Round answer a whole number. **167**

1,000 mL / 6 hrs = 166.666 …7 = 167 mL/hr

17. Administer gentamicin 1 G/100 mL IVPB over 1 hr. At what rate should the nurse administer the medication per hour and minute? Round minute answer to the 10th. **100 mL/ 60 = 1.7 mL/min; 100/1 = 100 mL/hr**

100/1 = 100 mL/hr; 100 mL /60 = 1.66666… = 1.7 mL/min

18. Administer 1,000 mL D5W to at a rate of 125 mL/hour. How many hours should it take to infuse 1 L? **8 hrs**

1,000 mL/125 mL = 8 hrs

19. Administer heparin sodium 1,300 units/hour by IV. The pharmacy prepares the medication and delivers an IV bag 20,000 units/250 mL D5W. At what rate should the nurse administer the medication? Round to the 10th. **16.3**

1,300 u/20,000 u = 0.065 u x 250 mL = 16.25 = 16.3 mL/hr

20. Administer D5 ½ at 100 mL/hour. The drop factor is 15 gtt/mL. How many drops per minute (gtt/min) should the pump be set to run? **25**

100 mL/60 minutes × 15 gtts/1 mL = 25

21. Medication order: Administer an IV at 30mL/hour. The IVAC indicates that 270 mL are remaining in the present IV bag. The time is exactly 10:30 am. At what time should the infusion be completed? **1930**

270 @ 1030, 240 @ 1130 ---- 0 finished by 1930

22. Administer Magnesium Sulfate 2 gm/ hour IV. Sent from the pharmacy is Magnesium Sulfate 40 gm/1,000mL. The nurse should set the pump at _____mL/hour. **50 mL/hr**

2 g /40 g = 0.05 x 1,000 mL = 50 mL

23. Administer Ritodrine IV 50 mcg/min. The pharmacy sent Ritodrine 150 mg premixed in 500 mL D5W. The nurse should set the IV pump at _____mL/hour. **10 mL/hr**

0.05 mg/150 mg x 500 = 0.16666….7 x 60 = 10

24. Administer Keflex 2.0 g /100 mL in D5W in thirty minutes. The nurse should set the IV pump at _____mL/hour. **200 mL/hr**

100 mL x 2 = 200 mL/hr

25. Administer 1.5 L Lactated Ringers in 12 hours. Calculate the rate of flow if the drop factor is 20 gtt/mL. Round final answer to a whole number. **42**

1,500 mL /60 min = 25 x 20 = 500 mL/12 = 41.666…..7 = 42 gtt/min

Medication Calculation Worksheet #3

1. Medication order: Heparin 25,000 units in 500 mL, infuse 4000 units/hr. How many mL per hour should it take to administer 4,000 units/hr?

2. Medication order: Lidocaine 8 mg in 250 mL, infuse at 10 mcg/min. How many mL per hour should it take to administer 10 mcg/min? Round answer to the 10^{th}.

3. Medication order: Aminophylline 1 gram in 250 mL, infuse 25 mg/hr. How many mL per hour should it take to administer 25 mg/min? Round answer to the 10^{th}.

4. Medication on hand: Insulin 75 units in 125 mL. How many units per mL?

5. 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 should the nurse administer per dose? Per day? Round answer to the nearest tenth.

6. 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 should set the infusion pump at _____ mL/hour to administer the IVPB.

7. Administer 3.5 mL of aminophylline liquid (250 mg/2.5mL) PO for pain now. The nurse should administer 1 milligrams.

8. 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.

9. 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 IVPB of 75 mL for 30 minutes. What is the total amount the patient should receive during this time?

10. Administer 5 milligrams of acyclovir in 75 milliliters of normal saline over 15 minutes. The nurse should set the IV pump at how many mL/hour?

11. 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 should the nurse administer? Round to a whole number.

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

13. Administer 24.4 mg of dopamine in 363 mL of D5W at a rate of 9,818 mcg/hr. Calculate the flow rate in mL/hr. Round to a whole number.

14. Administer 10.1 mg of dopamine in 251 mL of D5W at a rate of 6 mg/hr. Calculate the flow rate in mL/hr. Round answer to a whole number.

15. Ordered Lasix 12,000,000 mcg IV push now. Available: 0.025 kg in 15 mL. How much should the nurse prepare? Do not round.

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

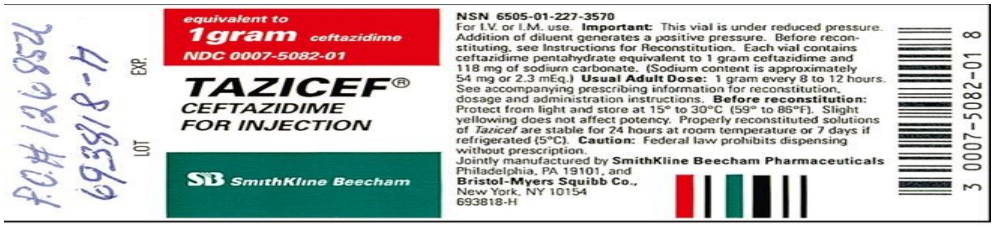
a. How many milliliters of diluent should be added to the bottle?

b. What is the final concentration of the prepared solution?

c. How many mL should the nurse administer? Do not round.

d. What other critical information is on the label?

17. Order: Tazicef 250 mg IM q8h. The nurse reconstituted the medication 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.

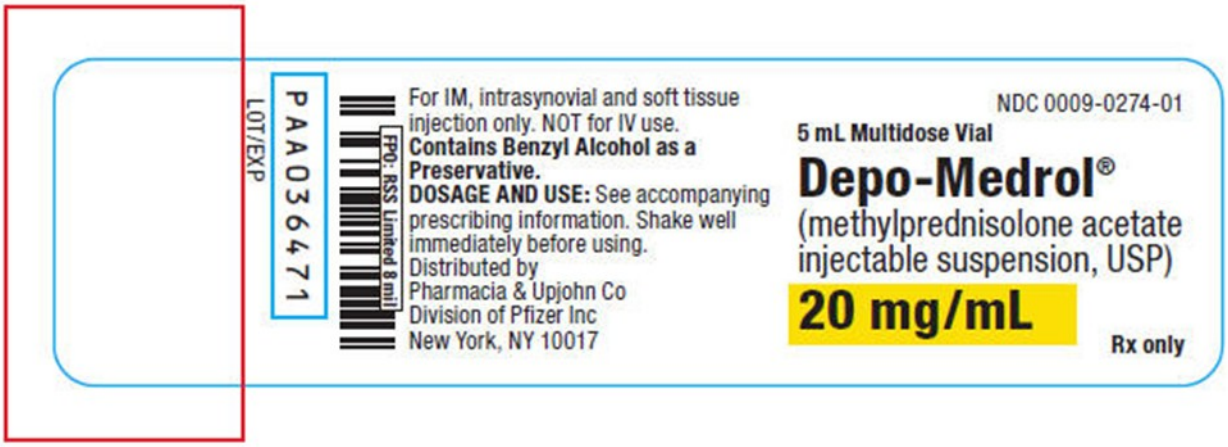
a. What error occurred?

b. What concentration should have been made?

18. Order: Kefzol 250 mg IM q4h. Available is Kefzol 500 mg that must be reconstituted with 2 mL sterile water. The nurse now has 2.2 mL (225 mg/mL). How many milliliters should the nurse administer? Round final answer to the nearest 10th.

19. Order: Linezolid 75 mg/kg/day by mouth in three divided doses. Available is Linezolid 100 mg/5 Ml. The patient weighs 66 pounds. How many mL should the patient take per dose?

20. Order: Administer Depo-Medrol 10 mg BID IV for five days. How many milligrams should be administered for the entire course of treatment?



21. 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?

22. 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.

23. Administer 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?

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

1. How many mL of Ativan should the nurse prepare? (Express in hundredths.)

2. How many minutes should it take to administer the medication as ordered?

25. A patient is receiving Pronestyl 60 mL/hr. Available is Pronestyl 2 g in 500 mL D5W. Calculate how many mg the patient should receive per hr and per minute.

Medication Calculation Worksheet #3 – Answers

26. Medication order: Heparin 25,000 units in 500 mL, infuse 4,000 units/hr. How many mL per hour should it take to administer 4,000 units/hr? **80**

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

27. Medication order: Lidocaine 8 mg in 250 mL, infuse at 10 mcg/min. How many mL per hour should it take to administer 10 mcg/min? Round answer to the 10th. **18.8**

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

18.75 = 18.8 mL

28. Medication order: Aminophylline 1 gram in 250 mL, infuse 25 mg/hr. How many mL per hour should it take to administer 25 mg/hr? Round answer to the 10th. **6.3**

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

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

75 u/ 125 mL = 0.6 u/mL

30. 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 should the nurse administer per dose/per day? Round answer to the nearest tenth. **1.9** and **7.6**

750/ 1,000 x 2.5 =1.875 = 1.950 = 1.9 mL/dose; 7.6 mL/day

31. 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 should set the infusion pump at _____ mL/hour to administer the IVPB. **500**

250 mL x 2 = 500 mL/hr

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

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

33. 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

34. 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 should receive an IVPB of 75 mL for 30 minutes. **1,350**

0700-1600= 9 hrs
9 hrs – 30 minutes = 8 hrs, 30 min (8.5)
8.5 x 150 mL/hr = 1,275 mL
1,276 mL + 75 mL (IVPB) = 1.350 mL

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

75 mL x 4 = 300 mL

36. 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 should the nurse administer? Round to a whole number. **25 mL**

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

37. 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

38. Administer 24.4 mg of dopamine in 363 mL of D5W at a rate of 9,818 mcg/hr. Calculate the flow rate in mL/hr. Round to a whole number. **146**

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

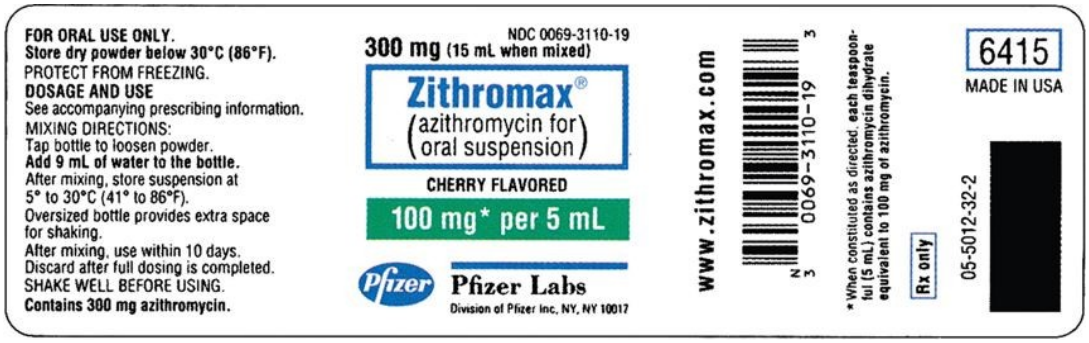
39. Administer 10.1 mg of dopamine in 251 mL of D5W at a rate of 6 mg/hr. Calculate the flow rate in mL/hr. Round to a whole number. **149**

6 mg/10.1 mg x 251 mL = 149.1089……. = 149 mL/hr

40. Ordered Lasix 12,000,000 mcg IV push now. Available: 0.025 kg in 15 mL. How much should the nurse prepare? Do not round. **7.2 mL**

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

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



a. How many milliliters of diluent should 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**

d /300 mg x 15 mL = 12.5 mL

d. What other critical information is on the label?

17. 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? **2.6 mL (IV) instead of 0. 75 mL IM - 3 x the IM dose**

b. What concentration should have been made? **280 mg/mL**

18. Order: Kefzol 250 mg IM q4h. Available is Kefzol 500 mg that must be reconstituted with 2 mL sterile water. The nurse now has 2.2 mL (225 mg/mL).

a. How many milliliters should the nurse administer? Round final answer to the nearest 10^{th}. **1.1 mL**

19. Order: Linezolid 75 mg/kg/day by mouth in three divided doses. Available is Linezolid 100 mg/5 mL. The patient weighs 66 pounds. How many mL should the patient take per dose? **37.5 mL**

75 x 30 (66/2.2) = 2,250/100 = 22.5 x 5 mL =112.5/3 = **37.5 mL**

20. Order: Administer Depo-Medrol 10 mg BID IV for five days. How many milligrams should be administered for the entire course of treatment? **0**

21. 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

22. 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

23. 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**

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

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

a. How many mL of Ativan should the nurse prepare? (Express in hundredths.) **0.75 mL**

3 mg /4 mg = 0.75 mL

b. How many minutes should it take to administer the medication as ordered? **1 ½ min**

3 mg /2 mg = 1.5 min

25. A patient is receiving Pronestyl 60 mL/hr. The solution available is Pronestyl 2 g in 500 mL D5W. Calculate how many mg the patient should receive per hr and per minute.

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

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

Calculation Worksheet #4

1. Ordered is flucloxacillin 250mg IM. Available is 1 G in 10 mL. How much should the nurse administer in mL?

2. Order: Administer 160 mg IV. Available is 100 mg/2 mL. How much should the nurse administer in mL? Do not round.

3. Azulfidine 1.5 g has been ordered every 12 hrs. Available are 500mg tablets. How many tablets should the nurse administer per day?

4. Ergotrate maleate 200 mcg is ordered po daily. Available is 0.2 mg. How many tablets should the nurse administer?

5. From 0700 to 1900 the nurse calculates the patient's total intravenous fluid intake as __?__ milliliters. An IV is infusing at 50 mL/hour. At 0900 the patient should receive IVPB of 125 mL for 30 minutes. What is the total amount in mL the patient will receive during this time?

6. Solumedrol 1.5 mg/kg is ordered for a child weighing 42 lb. Solumedrol is available as 75 mg / 1 mL is available. How many mL should the nurse administer? Round to the 100th.

7. Administer 17.1 mg of dopamine in 223 mL of D5W infused at a rate of 17,221 mcg/hr. Calculate the flow rate in mL/hr. Round answer to the 10th.

8. Calculate the IV flow rate for 0.2 L of D5W IV over 462 min. Infusion set has drop factor of 59 gtts/mL. What should the IV flow rate be in gtts/min? Round answer to a whole number.

9. Ordered Lasix 24 g IV push now. Available: 22,000,000 mcg in 12 mL. How should the nurse prepare? Round answer to a whole number.

10. Calculate the IV flow rate for 392 mL of D5W IV over 582 min. Infusion set has drop factor of 74 gtts/mL. What should the IV flow rate be in gtts/min? Round answer to a whole number.

11. The total volume ordered is 225 mL N/Saline 0.9% IV. The time over which it is to be given is 40 minutes. The drop factor is 15. How many drops per minute should be administered? Round answer to a whole number.

12. Ordered 7 g of Amoxicillin. Amoxicillin is available as 0.016 kg per 20 mL. How many mL will the nurse prepare? Round answer to the 10^{th}.

13. Potassium chloride is available as 0.016 kg per tablet. Potassium Chloride (K-Dur), 24,000,000 mcg, is ordered. How many tablets should the nurse administer?

14. Aggrastat at 23.8 mg in 129 mL is to be infused at 3 mcg/kg/hr to a patient who weighs 82 kg. At what flow rate in mL/hr should the nurse set the pump? Round answer to the 10^{th}.

15. Administer 0.06 g of codeine po now. Available are 30 mg tablets. How many tablets should the nurse administer?

16. Administer Nafcillin 0.5 g, IM, q6h. Using the following drug label, how many milliliters should the nurse give per dose? Do not round.

17. Administer Prednisone (Deltazone) 6 mcg/kg/min. The patient weighs 165 lb. Available is 250 mL D_5W with Deltazone 50 mg. How many milliliters per hour should the nurse need to run the infusion?

18. Administer Dobutamine 250 mg in 100 mL of D_5W at 15 mcg/kg/min. The patient weighs 120 lb. Calculate the flow rate in milliliters per hour. Round final answer to the nearest tenth.

19. 8 mL of normal saline is added to a 2 mL vial of Thiamine. How many mg of Thiamine are in each milliliter of fluid?

20. Administer 1 G of erythromycin IVPB every 8 hrs x 5 days. The patient should receive how many micrograms for the course of treatment?

21. A nurse calculates the patient's total intravenous (IV) fluid intake from 0700 to 1900. An IV of NS is infusing at 75 mL/hr. The patient also receives 3 IVPB of 100 mL for 30 minutes. What is the total amount of IV fluid intake for this time frame? Do not round.

22. A patient needs 2 g of a medication. It comes in 250 mg doses. How many doses should be administered? How many hours will it take if the patient is given one dose every 6 hours?

23. The total volume to be administered from an IV is 1,250mL over 10 hours. How many milliliters per minute should be administered? Round answer to a whole number.

24. An IV has been ordered to administer 55 mcg/kg of a medication to a child. The patient weighs 14 kg. The medication strength available is 2 mg/mL. How many mL should be administered? Round answer to the 100^{th}.

25. A patient is receiving 875 g of a medication in 1L of IV fluid. How many g per mL should the patient receive? Round answer to the 10^{th}.

Calculation Worksheet #4 - Answers

1. Ordered is flucloxacillin 250 mg IM. Available is 1 G in 10 mL. How much should the nurse administer in mL? **2.5**

   250 mg/1,000 mg x10 mL = 2.5 mL

2. Order: Administer 160 mg IV. Available is 100 mg/2 mL. How much should the nurse administer in mL? Do not round. **3.2**

   160 mg/100 mg x 2 mL = 3.2 mL

3. Azulfidine 1.5 g has been ordered every 12 hrs. Available are 500mg tablets. How many tablets should the nurse administer per day? **6**

   1.5 g/0.5 g = 3 x 2 = 6 tablets

4. Ergotrate maleate 200 mcg is ordered po daily. Available is 0.2 mg. How many tablets should the nurse administer? **1**

   200 mcg/200 mcg = 1 tablet

5. From 0700 to 1900 the nurse calculates the patient's total intravenous fluid intake as ___ milliliters. An IV is infusing at 50 mL/hour. At 0900 the patient will receive IVPB of 125 mL for 30 minutes. What is the total amount the patient should receive during this time? **700**

   12 hrs x 50 mL = 600 mL – 25 mL = 575 mL + 125 mL = 700 mL

6. Solumedrol 1.5 mg/kg is ordered for a child weighing 42 lb. Solumedrol is available as 75 mg / 1 mL is available. How many mL should the nurse administer? Round to the 100th. **0.38**

   1.5 mg x 19.1 kg = 28.6/75 mg x 1 mL = 0.38 mL

7. Administer 17.1 mg of dopamine in 223 mL of D5W infused at a rate of 17,221 mcg/hr. Calculate the flow rate in mL/hr. Round answer to the 10th. **224.6**

17,221 mcg/17,100 mcg x 223 mL = 224.57….. = 224.6 mL/hr

8. Calculate the IV flow rate for 0.2 L of D5W IV over 462 min. Infusion set has drop factor of 59 gtts/mL. What should the IV flow rate be in gtts/min? Round answer to a whole number. **26**

200 mL/462 min x 59 gtts = 25.54…. = 26 gtts/min

9. Ordered Lasix 24 g IV push now. Available: 22,000,000 mcg in 12 mL. How much should the nurse prepare? Round answer to a whole number. **13**

24 g/22 g x 12 mL = 13.09….. = 13mL

10. Calculate the IV flow rate for 392 mL of D5W IV over 582 min. Infusion set has drop factor of 74 gtts/mL. What should the IV flow rate be in gtts/min? Round answer to a whole number. **50**

392 mL/582 min x 74 gtts = 49.84… = 50 gtts/min

11. The total volume ordered is 225 mL N/Saline 0.9% IV. The time over which it is to be given is 40 minutes. The drop factor is 15. How many drops per minute should be administered? Round answer to a whole number. **84**

225 mL/40 min = 5.625 x 15 gtts = 84.375 = 84 gtts/min

12. Ordered 7 g of Amoxicillin. Amoxicillin is available as 0.016 kg per 20 mL. How many mL should the nurse prepare? Round answer to the 10th. **8.8**

0.007 kg/0.016 kg x 20 mL = 8.75 = 8.8 mL

13. Potassium chloride is available as 0.016 kg per tablet. Potassium Chloride (K-Dur), 24,000,000 mcg, is ordered. How many tablets should the nurse administer? **1.5**

0.024 kg/0.016 kg = 1.5 (1 ½) tablets

14. Aggrastat at 23.8 mg in 129 mL is to be infused at 3 mcg/kg/hr to a patient who weighs 82 kg. At what flow rate in mL/hr should the nurse set the pump? Round answer to the 10th. **1.3**

246 mcg/23,800 mcg x 129 mL = 1.33… = 1.3 mL

15. Administer 0.06 g of codeine po now. Available are 30 mg tablets. How many tablets should the nurse administer? **2**

60 mg/30 mg = 2 tabs

16. Administer Nafcillin 0.5 g, IM, q6h. Using the following drug label, how many milliliters should the nurse give per dose? Do not round. **2**

0.5 g/2 g =0.25 g x 8 mL = **2 mL**

17. Administer Prednisone (Deltazone) 6 mcg/kg/min. The patient weighs 165 lb. Available is 250 mL D_5W with Deltazone 50 mg. How many milliliters per hour should the nurse need to run the infusion? **135**

165/2.2 = 75 kg; 6 mcg x 75 = 450 mcg/min; 0.45 mg/50 mg = 0.009 mg x 250 mL = 2.25 mL x 60 (1 hr) = 135 mL/hr

18. Administer Dobutamine 250 mg in 100 mL of D_5W at 15 mcg/kg/min. The patient weighs 120 lb. Calculate the flow rate in milliliters per hour. Round final answer to the nearest tenth. **19.6**

120/2.2 = 54.5 kg; 15 mcg x 54.5 = 817.5 mcg/min; 817.5 mcg= 0.8175 mg/250 mg = 0.00327 mg x 100 mL = 0.32 x 60 min = 19.62= 19.6 mL/hr

19. 8 mL of normal saline is added to a 2 mL vial of Thiamine containing 100 milligrams (mg). How many mg of Thiamine are in each milliliter of fluid? **20**

200 mg/10 mL = 20 mg/mL

20. Administer 1 G of erythromycin IVPB every 8 hrs x 5 days. The patient should receive how many micrograms for the course of treatment? **15,000,000 mcg**

1,000 mg x 3 x 5 days = 15,000 mg = 15,000,000 mcg in 5 days

21. A nurse calculates the patient's total intravenous (IV) fluid intake from 0700 to 1900. An IV of NS is infusing at 75 mL/hr. The patient also receives 3 - IVPB of 100 mL for 30 minutes. What is the total amount of IV fluid in mL for this time frame? Do not round. **1087.5 mL**

900 mL/12 hrs – 112.5 mL (1.5 hrs interrupted) = 787.5 mL + 300 mL (3 IVPB) = 1087.5 mL total for the time frame.

22. A patient needs 2 g of medication. It comes in 250 mg. How many doses should be administered? How many hours will it take if the patient is given one dose every 6 hours? **8 doses and 48 hrs**

2,000 mg/250 mg = 8 doses; 4 doses per day = 2 days (48 hrs)

23. The total volume to be administered from an IV is 1,250mL over 10 hours. How many milliliters per minute should be administered? Round answer to a whole number. **2**
1,250/10= 125/60 = 2.08 = 2

24. An IV has been ordered to administer 55 mcg/kg of a medication to a child. The patient weighs 14 kg. The medication strength available is 2 mg/mL. How many mL should be administered? Round answer to the 100th. **0.4 mL**

14 x 55 = 770 mcg = 0.7 mg/ 2 mg = 0.35 mL or 0.4 mL

25. A patient is receiving 875 g of a medication in 1L of IV fluid. How many g per mL should the patient receive? Round answer to the 10th. **0.9 g/mL**

875/1000 mL = 0.875 = 0.9