NURS-271 Math Packet Fall 2021

To prepare for NURS 271, we have created a Math Packet. Complete all math calculations below. This is a **mandatory** assignment.

The math packet is due **September 9, 2021. Answers must be submitted via Canvas Speed Grader. Refer to your course letter for instructions on Speed Grader.**

For the Pediatric math test, you will be expected to calculate and demonstrate the following:

- Convert pounds to Kg and Kg to pounds.
- Calculate amount of drug to be administered.
- Calculate hourly infusion rates.
- Calculate the infusion rate in gtts/min.
- Determine safe dose range based on mg/kg/day or mg/kg/dose. You will be provided with the recommended mg/kg/day.
- **Pediatric Normal Urinary Output: 1-2ml/kg/hour:** (Rudd and Kocisko p. 559)
- **Calculation of Daily Maintenance Fluid Requirements:** (Rudd and Kocisko p. 559)

Child's Weight	Daily Maintenance Fluid Requirement
0-10 kg	100 ml/kg of body weight
11-20 kg	1000ml + 50 ml/kg per each kg over 10
>20 kg	1500 ml + 20 ml/kg per each kg over 20

Review the following:

1. ATI: ATI has information on Dosage & Calculation.

- Go to ATI.
- Go to the dosage and calculation tutorial.
- Go to Dosages by weight
- Go to pediatric medications

2. ATI: Nursing Care of Children-Chapter 8 Safe Administration of Medication: This chapter is **imperative** for the Pedi math test, administration of medication during clinical, and the Pediatric Vaccination Clinic (PVC).

3. In addition to submitting the answers in Speed Grader, you will review the math packet with your clinical instructor the first day of clinical. **All work must be shown**.

Practice Problems

1. The physician orders furosemide (Lasix) 20 mg IV. The medication label reads "furosemide (Lasix) 10 mg/mL." How many mL will the nurse administer?

2. The child is to receive phenytoin (Dilantin) 75 mg PO q12h. The safe dose range is 5–7 mg/kg/day in divided doses q12h. The child weighs 56 lb. What is the individual safe dose range for this child? Is the ordered dose safe? Round the answer to the nearest tenth. Use a leading zero if it applies. Do not use a trailing zero.

3. The child is prescribed lanoxin (Digoxin) 75 mcg PO qd. The pharmacy supplies lanoxin (Digoxin) 0.05mg scored tablets. How many tablets will the nurse administer? Record your answer using one decimal place.

4. The physician orders the patient a 10-mL/kg normal saline bolus to infuse over 2 hours. The child weighs 36 kg. Calculate the infusion rate in mL/hr.

5. The child is receiving D10NS with 20 mEq KCL infusing at 100 mL/hr. A new 1,000-mL fluid bag was hung at 0700. At 0800 the IV infiltrated and was restarted at 1000. At 1100 the IV rate was decreased to 50 mL/hr until 1900. Calculate the total IV intake from 0700 to 1900.

6. The physician orders vancomycin (Vancomycin) 250 mg PO qid for a child weighing 65 lb. The safe dose range is 25–50 mg/kg/day in divided doses q6h. What is the individual safe dose range for this child? Is the ordered dose safe? Round the answer to the nearest tenth. Use a leading zero if it applies. Do not use a trailing zero.

7. The child has continuous bladder irrigation running at 175 mL/hr. The nurse empties 250 mL from the child's Foley catheter at 1000, 375 mL at 1130, 180 mL at 1200, and 425 mL at 1400. What is the child's total urine output from 1000 to1400?

8. The patient is to receive amoxicillin (Amoxil) 80 mg oral suspension q6h. The pharmacy supplies a bottle labeled "amoxicillin (Amoxil) 125 mg/5 mL." How many mL will the nurse administer? Record your answer using one decimal place.

9. The patient is to receive an enteral tube feeding of $\frac{2}{3}$ strength Nutren Junior to infuse at 120 mL/hr. The Nutren Junior is available in a full-strength 8-ounce can. How many mL of water will the nurse add to make the correct concentration of formula?

10. The physician orders duramorph (Morphine Sulfate) 2 mg IV q4h prn pain. The safe dose range is 0.1–0.2 mg/kg/dose. The child weighs 43 lb. What is the individual safe dose range for this child? Is the ordered dose safe? Record your answer rounding to one decimal place.

11. The child with an NG tube connected to low intermittent suction has the following orders:

1. NPO
2. Measure and record NG output q4hr
3. Maintenance IV: D10/0.45 NaCl @ 120 mL/hr
4. Replace NG output mL for mL over 4 hours
5. NG replacement IV: 0.5% NaCl
6. Maximum hourly IV intake of 200 mL/hr

The NG output for the past 4 hours was 320 mL. Calculate the NG replacement IV infusion rate for the next 4 hours in mL/hr.

12. The physician orders 300 mL NS IV bolus to infuse over 2 hours. The IV infusion pump is not available. The nurse has microdrip tubing with a drop factor of 20 gtts/mL. Calculate the infusion rate in gtts/min.

13. The child is ordered naloxone HCL (Narcan) 300 mcg IV push STAT. The medication package is labeled "naloxone HCL (Narcan) 0.4 mg/mL." How many mL will the nurse administer? Record your answer using two decimal places.

14. The child is receiving an IV infusion of D51/2 NS infusing at 65 mL/hr. At 0700 the infusion bag contained 650 mL. What time should the nurse expect the infusion bag to be empty?

15. The physician ordered Heparin 8,000 units subcutaneous once daily. The pharmacy provides a vial labeled "Heparin 10,000 units per mL." How many mL will the nurse administer? Record your answer using one decimal place.

16. The patient is prescribed piperacillin (Zosyn) 300 mg IV q8h to infuse over 4 hours. The pharmacy provides a bag labeled "piperacillin (Zosyn) 300 mg in 200 mL." Calculate the infusion rate in mL/hr.

17. The child is prescribed acetylsalicylic acid (aspirin) 650 mg PO daily. The pharmacy supplies acetylsalicylic acid (aspirin) 325 mg in scored tablets. How many tablets will the nurse administer?

18. The physician orders clindamycin (Cleocin) oral suspension 230 mg PO tid for a child weighing 82 lb. The safe dose range is 12–18 mg/kg/day in 3 divided doses. What is the individual safe dose range for this child? Is the ordered dose safe? Round the answer to the nearest tenth. Use a leading zero if it applies. Do not use a trailing zero.

19. The physician orders ranitidine (Zantac) 150 mg IV q12h to infuse over 15 minutes. The pharmacy supplies a bag labeled "ranitidine (Zantac) 150 mg in 100 mL." Calculate the infusion rate in mL/hr.

20. The physician orders 100 mL D10W IV bolus to infuse over 15 minutes. The IV infusion pump is not available. The nurse has microdrip tubing with a drop factor of 60 gtt/mL. Calculate the infusion rate in gtts/min.

21. The child is prescribed omnicef (Cefdinir) 380 mg PO qid. The safe dose range for omnicef (Cefdinir) is 15–30 mg/kg/day in divided doses. The child weighs 105 lb. Calculate the individual safe dose range for this child. Is the ordered dose safe? Record your answer rounding to the whole number.

22. The physician orders 150 mg hydrocortisone sodium succinate (Solu-Cortef) IV push q6h. The vial reads "hydrocortisone sodium succinate (Solu-Cortef) 250 mg/2 mL." How many mL will the nurse administer? Record your answer using one decimal place.

23. The child is prescribed fluconazole (Diflucan) 600 mg PO bid. The pharmacy supplies a bottle labeled "fluconazole (Diflucan) 60 mg/mL." How many tsp will the nurse administer?

24. The physician orders hydromorphone (Dilaudid) 2 mg PO q4h prn pain. The safe dose range for hydromorphone (Dilaudid) is 0.03–0.08 mg/kg/dose q4h prn pain. The child weighs 117 lb. Calculate the individual safe dose range for this child. Is the ordered dose

safe? Round the answer to the nearest tenth. Use a leading zero if it applies. Do not use a trailing zero.

25. The physician prescribes famotidine (Pepcid) 25 mg to infuse over 45 minutes. The pharmacy provides a bag labeled "famotidine (Pepcid) 25 mg/150 mL." Calculate the infusion rate in mL/hr.

26. The child is ordered to receive levetiracetam (Keppra) 250 mg PO qid. The medication available reads "levetiracetam (Keppra) 125 mg/5 mL." How many mL will the nurse administer?

27. The patient is to receive an enteral tube feeding of $\frac{1}{2}$ strength Elocare Infant to infuse at 90 mL/hr. The Elocare Infant is available in a full-strength 8-ounce can. How many mL of water will the nurse add to make the correct concentration of formula?

28. The physician orders voriconazole (Vfend) 325 mg IV q6h to infuse over 45 minutes. The pharmacy supplies a bag labeled "voriconazole (Vfend) 325 mg in 250 mL." Calculate the infusion rate in mL/hr. Record your answer using one decimal place.

29. The child is prescribed enalapril (Vasotec) 2 mg PO bid. The safe dose range for enalapril (Vasotec) is 0.08–0.1 mg/kg/day in 2 divided doses. The child weighs 92 lb. Calculate the individual safe dose range for this child. Is the ordered dose safe? Round the answer to the nearest tenth. Use a leading zero if it applies. Do not use a trailing zero.

30. The child is ordered methylprednisolone sodium succinate (Solu-Medrol) 750 mcg IV q12h. The medication package is labeled "methylprednisolone (Solu-Medrol) 1 mg/mL." How many mL will the nurse administer? Record your answer using two decimal places.

31. The child weighs 12 kg. Calculate the 4-hour fluid requirement. Record your answer using one decimal place.

32. The child weighs 154 lb. Calculate the 24-hour fluid requirement.

33. The child weighs 40 lb. Calculate the hourly fluid requirement. Round the answer to the nearest tenth. Use a leading zero if it applies. Do not use a trailing zero.

34. The child weighs 8 kg. Calculate the 6-hour fluid requirement.

35. The child weighs 117 lb. Calculate the 12-hour fluid requirement. Record your answer using one decimal place.

36. The child weighs 36 lb. Calculate the expected urine output for 6 hours. Record your answer using one decimal place.

37. The child weighs 128 lb. Calculate the expected urine output for 12 hours. Record your answer using one decimal place.

38. The child weighs 56 lb. Calculate the expected urine output for 2 hours. Record your answer using one decimal place.

39. For the past 4 hours, a child weighing 64 lb has had 100 mL of urine output. Is this above, below, or within the expected urine output range for this child? Round the answer to the nearest tenth.

40. For the past 6 hours, a child weighing 54 kg has had 564 mL of urine output. Is this above, below, or within the expected urine output range for this child?

41. An infant weighs 6 lbs 9 oz. Convert to Kg. Round the answer to the nearest tenth. Use a leading zero if it applies. Do not use a trailing zero.

42. Order: Pitocin IV 4mu/min
    Availability: Pitocin 20 Units in 1000ml D5LR
    Calculate the infusion rate in ml/hr.

43. Order: Pitocin IV 2mu/min
    Availability: Pitocin 20 Units in 1000ml D5LR
    How many ml/hr will you set the pump to infuse the correct amount?

44. A 9-month-old infant is on strict I&O. The diaper weighs 25ml when dry. When changing the diaper with urine, the total weight is 89ml. How much output is calculated for the infant?

Convert Pounds to Ounces
Subtract 5-10%
Convert back to pounds**** (see formula)

Formula
Divide ounces by 16 to get pounds
Any decimal, times by 16 to get ounces
Infant weighs 9 pounds, 13 ounces
(9 x 16) + 13= 157 ounces
Infant can lose 15.7 ounces
157-15.7= 141.3 ounces
141.3 divided by 16= 8.83125
Or 8 pounds and 83.125/100ths of a pound
.83125 x 16= 13.3 ounces

The newborn can weigh no less than 8 pounds, 13.3 ounces
If the ounces you have to subtract are greater than the ounces that follow the pound, convert the previous pound to ounces.
Example: Infant weighs 9 pounds, 13 ounces
(9 x 16) + 13= 157 ounces
Infant can lose 15.7 ounces
9 pounds, 13 ounces = 8 pounds, 29 ounces -15.7 ounces
The newborn can weigh no less than 8 pounds, 13.3 ounces

45. A baby is born at 7lbs 8 oz. What is lowest acceptable weight for this baby is what? Please put your answer in pounds and ounces.