

Bethel College

Upper Level Math/Drug Proficiency Spring Review 1 KEY

Calculate the following problems. Unless indicated, all medications involving mL greater than 1 should be rounded to the nearest tenth. Answers in mL that are less than 1 should be rounded to the nearest hundredth. All answers involving tablets should be recorded in terms of # of tabs (or ½ tabs).

1. Prepare an IM injection of 10 mg of phenergan from available solution of 15 mg per mL. Give 0.67 mL.

$$X \text{ mL} = \text{mL}/15 \text{ mg} \times 10 \text{ mg}/1$$

2. You need to administer 500 mL of D5W over 8 hours using a tubing with a set calibration of 10 gtt/mL. Calculate the flow rate in mL/hr & gtts/min.
63 mL/hr & 11 gtts/min.

$$X \text{ mL/hr} = 500 \text{ mL}/8 \text{ hr}$$

$$X \text{ gtts/min} = 10 \text{ gtts/mL} \times 63 \text{ mL/hr} \times \text{hr}/60 \text{ min}$$

3. The normal pediatric dosage of a medication is 5 mg/kg every 4 hours. Calculate the daily dosage for a child weighing 60 lbs. 818 mg per day.

$$X \text{ mg/day} = 5 \text{ mg/kg/dose} \times \text{kg}/2.2 \text{ lbs} \times 60 \text{ lbs}/1 \times 6 \text{ doses/day}$$

4. A client has an order for hyperalimentation. 1200 mL of solution is to run from 2300-0700. What rate should the IV pump deliver?
150 mL/hr.

$$X \text{ mL/hr} = 1200 \text{ mL}/8 \text{ hr}$$

5. You have orders to give Unasyn 1 gram IVPB every 6 hours. The drug book states to administer the drug over 40 minutes. It comes prepared in 50 mL. How fast will you administer the medication using an IV pump? How fast will you administer the medication without a pump using IV tubing with a drop factor of 20 gtts/mL? 75 mL/hr & 25 gtts/min.

$$\mathbf{X \text{ mL/hr} = 50 \text{ mL}/40 \text{ min} \times 60 \text{ min/hr}}$$

$$\mathbf{X \text{ gtts/min} = 20 \text{ gtts/mL} \times 75 \text{ mL/hr} \times \text{hr}/60 \text{ min}}$$

6. The order is to infuse dobutamine 400 mg in 500 mL D5W for your patient in Critical Care at 5 mcg/kg/min. The patient weighs 210 pounds. How fast will you administer the medication? 36 mL/hr.

$$\mathbf{X \text{ mL/hr} = 500 \text{ mL}/400 \text{ mg} \times 1 \text{ mg}/1000 \text{ mcg} \times 5 \text{ mcg/kg/min} \times \text{kg}/2.2 \text{ lbs} \times 210 \text{ lbs}/1 \times 60 \text{ min/hr}}$$

7. The patient has Nipride 50 mg in 250 mL D5W, infusing at 22 mL/hr. The patient weighs 160 pounds. How many mcg/kg/min is the patient receiving? 1 mcg/kg/min.

$$\mathbf{X \text{ mcg/kg min} = 1000 \text{ mcg/mg} \times 50 \text{ mg}/250 \text{ mL} \times 22 \text{ mL/hr} \times \text{hr}/60 \text{ min} \times 2.2 \text{ lbs/kg} \times 1/160 \text{ lbs}}$$

8. You are in the middle of a code and the patient is in pulseless V-tach. The physician orders Lidocaine 1.5 mg/kg IV bolus. Patient weighs 175 lbs. How much Lidocaine will you administer? 119 mg.

$$\mathbf{X \text{ mg} = 1.5 \text{ mg/kg} \times 175 \text{ lbs}/1 \times \text{kg}/2.2 \text{ lbs}}$$

9. The Lidocaine bolus converts the patient in question 8 to Sinus Rhythm so the physician orders you to start a drip at 2 mg/min. The medication comes premixed on the code cart with 2 grams in 500 mL. How fast will you administer the drip? 30 mL/hr.

$$\mathbf{X \text{ mL/hr} = 500 \text{ mL}/2 \text{ g} \times \text{g}/1000 \text{ mg} \times 2 \text{ mg/min} \times 60 \text{ min/hr}}$$

10. The order is for Ascorbic acid 1 gram daily. The tablets come with 500 mg per tablet. How many tablets will you give? 2 tab.

$$\mathbf{X \text{ tab} = \text{tab}/500 \text{ mg} \times 1000 \text{ mg/g} \times 1 \text{ g/1}}$$

11. Morphine is available as a gr $\frac{1}{4}$ per mL solution. You need to prepare a gr $\frac{1}{6}$ dose. Give 0.67 mL.

$$\mathbf{X \text{ mL} = \text{mL}/\text{gr } \frac{1}{4} \times \text{gr } \frac{1}{6} /1}$$

12. The order is for garamycin 60 mg. You have Garamycin 40 mg/1.5 mL. You would give 2.3 mL.

$$\mathbf{X \text{ mL} = 1.5 \text{ mL}/40 \text{ mg} \times 60 \text{ mg/1}}$$

13. If the IV solution is running at 45 mL/hour and you are using a microdrip, what is the flow rate? 45 gtts/min.

$$\mathbf{X \text{ gtts/min} = 60 \text{ gtts/mL} \times 45 \text{ mL/hr} \times \text{hr}/60 \text{ min}}$$

14. A 5 kg infant has orders for Nebcin IV 3.5 mg/kg/day to be administered every 12 hours. How many mgs will you administer for one dose? 8.8 mg/dose.

$$\mathbf{X \text{ mg/dose} = 3.5 \text{ mg/kg/day} \times 5 \text{ kg/1} \times 1 \text{ day}/2 \text{ doses}}$$

15. You are caring for a patient admitted with DKA. They have orders to start an insulin drip at 12 units per hour. The IV comes prepared from pharmacy with 100 units in 250 mL. How fast will you administer this insulin? 30 mL/hr.

$$\mathbf{X \text{ mL/hr} = 250 \text{ mL}/100 \text{ units} \times 12 \text{ units/hr}}$$

16. You have orders to administer Dilantin 6 mg/kg/day for a young child with seizures. The child weighs 30 lbs. The Dilantin comes prepared and premeasured with 125 mg/5mL. How many mL will you administer per day? _____**3.3**_____mL/day.

$$\mathbf{X \text{ mL/day} = 5 \text{ mL}/125 \text{ mg} \times 6 \text{ mg/kg/day} \times \text{kg}/2.2 \text{ lbs} \times 30 \text{ lbs}/1}$$

17. You have orders to give Dobutamine 7.5 mcg/kg/min for a patient with severe HF. The patient weighs 135 lbs. The Dobutamine comes premixed with 500 mg in 250 mL. How fast will you administer this IV? _____**14**_____mL/hr.

$$\mathbf{X \text{ mL/hr} = 250 \text{ mL}/500 \text{ mg} \times \text{mg}/1000 \text{ mcg} \times 7.5 \text{ mcg/kg/min} \times \text{kg}/2.2 \text{ lbs} \times 135 \text{ lbs}/1 \times 60 \text{ min/hr}}$$

18. The order is give Morphine gr 1/8. You have Morphine 10 mg/mL available. Give _____**0.75**_____mL.

$$\mathbf{X \text{ mL} = \text{mL}/10 \text{ mg} \times 60 \text{ mg/gr} \times 1 \times \text{gr} \text{ } 1/8 /1}$$

19. You have orders to start a continuous Morphine infusion for your patient with terminal cancer while caring for them as a hospice nurse. The physician ordered the Morphine to infuse at 10 mg/hr. The morphine comes prepared with 300 mg in 500 mL. How fast will you infuse this drip? _____**17**_____mL/hr.

$$\mathbf{X \text{ mL/hr} = 500 \text{ mL}/300 \text{ mg} \times 10 \text{ mg/hr}}$$

20. You have orders to give Furosemide 2 mg/kg/day PO for a child with HF. The medication comes supplied with 10 mg/mL. The child weighs 40 kg. How many mL will you administer per day? _____**8**_____mL/day.

$$\mathbf{X \text{ mL/day} = \text{mL}/10 \text{ mg} \times 2 \text{ mg/kg/day} \times 40 \text{ kg}/1}$$

21. You have just received a patient being admitted for unstable angina. The physician has ordered Heparin to be started at 16 units/kg/hr. The Heparin comes prepared from pharmacy with 25,000 units in 250 mL. How fast will you administer this medication? The patient weighs 175 lbs.
_____1273_____units/hr. _____13_____mL/hr.

$$\mathbf{X \text{ units/hr} = 16 \text{ units/kg/hr} \times \text{kg}/2.2 \text{ lbs} \times 175 \text{ lbs}/1}$$

$$\mathbf{X \text{ mL/hr} = 250 \text{ mL}/25,000 \text{ units} \times 1273 \text{ units/hr}}$$

22. You have orders to give Solu-Medrol 80 mg IVP every 8 hours. The medication comes with 120 mg/2 mL. How much will administer?
_____1.3_____mL.

$$\mathbf{X \text{ mL} = 2 \text{ mL}/120 \text{ mg} \times 80 \text{ mg}/1}$$