

**Bethel College
Fundamentals of Nursing**

Upper Level Math/Drug Proficiency Fall Review 2 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. The order is to restrict IV fluid intake to 1200 mL/24 hour. You are caring for this client on the 11 pm-7 am shift. The intake and output record indicates the client has received 900 mL IV during the last 16 hour. What is the flow rate now? The set calibration is 20 gtts/mL. 19gtts/min.

$$\mathbf{X \text{ gtts/min} = 20 \text{ gtts/mL} \times 900 \text{ mL}/16 \text{ hr} \times \text{hr}/60 \text{ min}}$$

2. Your client is to receive Atropine gr 1/100 subq stat. Atropine 0.4 mg per mL is available. Calculate the dosage. 1.5mL.

$$\mathbf{X \text{ mL} = \text{mL}/0.4 \text{ mg} \times 60 \text{ mg/gr} \times 1 \times \text{gr} \text{ 1}/100 /1}$$

3. The pediatric dosage of a medication is 8 mg/kg every 4 hours. Calculate the daily and individual dosages for a child weighing 40 lbs.
145.5mg/dose. 873mg/day.

$$\mathbf{X \text{ mg/dose} = 8 \text{ mg/kg} \times \text{kg}/2.2 \text{ lbs} \times 40 \text{ lbs}/1}$$

$$\mathbf{X \text{ mg/day} = 145.5 \text{ mg/dose} \times 6 \text{ doses/day}}$$

4. Codeine tablets have a strength of 30 mg. To prepare a gr ¼ dose you would give 0.5tab.

$$\mathbf{X \text{ tab} = \text{tab}/30 \text{ mg} \times 60 \text{ mg/gr} \times \text{gr} \text{ 1}/4/1}$$

5. The normal pediatric dosage of a medication is 4 mg/kg every 6 hours. Calculate the daily dosage for a child weighing 40 lb. 290.9mg/day.

$$\mathbf{X \text{ mg/day} = 4 \text{ mg/kg/dose} \times \text{kg}/2.2 \text{ lbs} \times 40 \text{ lbs}/1 \times 4 \text{ doses/day}}$$

6. Your client needs to receive 45 mL of an IV solution every hour using microdrip tubing. Calculate the flow rate. 45gtts/min.

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

7. The order reads to give 6000 units of heparin. You have a 10 mL multi-dose vial of heparin labeled 10,000 units per 2 mL. How much would you need? 1.2mL.

$$\mathbf{X \text{ mL} = 2 \text{ mL}/10,000 \text{ units} \times 6000 \text{ units}/1}$$

8. You have orders to start a Heparin drip on a patient who weighs 190 lbs. The orders are for a 60 units/kg bolus of heparin and to start a heparin drip at 12 units/kg/hr. The Heparin comes mixed with 25,000 units in 500 mL. The vial for the bolus has 10,000 units in 1 mL. Calculate both the bolus and continuous drip.

Bolus: 5182 units. 0.52 mL.

Continuous infusion: 1036 units/hr. 20.7 mL/hr.

$$\mathbf{X \text{ units} = 60 \text{ units/kg} \times \text{kg}/2.2 \text{ lbs} \times 190 \text{ lbs}/1}$$

$$\mathbf{X \text{ mL} = 1 \text{ mL}/10,000 \text{ units} \times 5182 \text{ units}/1}$$

$$\mathbf{X \text{ units/hr} = 12 \text{ units/kg/hr} \times \text{kg}/2.2 \text{ lbs} \times 190 \text{ lbs}/1}$$

$$\mathbf{X \text{ mL/hr} = 500 \text{ mL}/25,000 \text{ units} \times 1036 \text{ units/hr}}$$

9. The orders for a 9 lb infant are to infuse Claforan IVPB 50 mg/kg. Calculate the correct pediatric dosage. 204.5mg.

$$\mathbf{X \text{ mg} = 50 \text{ mg/kg} \times \text{kg}/2.2 \text{ lbs} \times 9 \text{ lbs}/1}$$

10. The normal dose of pediatric medication is 15 mg/kg every 4 hours. Calculate the daily & individual doses for a child weighing 34 lbs.

231.8mg/dose. 1390.8mg/day.

$$\mathbf{X \text{ mg/dose} = 15 \text{ mg/kg} \times \text{kg}/2.2 \text{ lbs} \times 34 \text{ lbs}/1}$$

$$\mathbf{X \text{ mg/day} = 231.8 \text{ mg/dose} \times 6 \text{ doses/day}}$$

The medication comes prepared with 50 mg per 1 tsp. How much will you administer for 1 dose? 4.6tsp.

$$\mathbf{X \text{ tsp} = 1 \text{ tsp}/50 \text{ mg} \times 231.8 \text{ mg}}$$

11. You have an IV of D5NS infusing at 80 mL/hr and you have tubing with a drip factor of 10 gtts/mL. How many gtts/min will you infuse this at? 13gtts/min.

$$\mathbf{X \text{ gtts/min} = 10 \text{ gtts/mL} \times 80 \text{ mL/hr} \times \text{hr}/60 \text{ min}}$$

12. You have an IVPB of 500 mg in 50 mL to run for 20 min. How many mL/hr will you infuse this at? With a tubing factor of 20 gtts/mL how many gtts/min will you use? 150mL/hr. 50gtts/min.

$$\mathbf{X \text{ mL/hr} = 50 \text{ mL}/20 \text{ min} \times 60 \text{ min/hr}}$$

$$\mathbf{X \text{ gtts/min} = 20 \text{ gtts/mL} \times 50 \text{ mL}/20 \text{ min}}$$

13. During your 8 hour shift you need to infuse 600 mL of D5NS. The set calibration of the tubing is 15 gtts/mL. What is the flow rate? 75mL/hr. 19gtts/min.

$$\mathbf{X \text{ mL/hr} = 600 \text{ mL}/8 \text{ hr}}$$

$$\mathbf{X \text{ gtts/min} = 15 \text{ gtts/mL} \times 75 \text{ mL/hr} \times \text{hr}/60 \text{ min}}$$

14. The normal pediatric dosage of medication is 60 mg every 4 hours. Calculate the daily dose for a child weighing 48 lbs. If the medication comes prepared with 125 mg/tsp. How much will you administer in 1 dose? 360mg/day. 0.5tsp/dose.

$$\mathbf{X \text{ mg/day} = 60 \text{ mg/dose} \times 6 \text{ doses/day}}$$

$$\mathbf{X \text{ tsp/dose} = \text{tsp}/125 \text{ mg} \times 60 \text{ mg/dose}}$$

15. Morphine 10 mg has been ordered. You have Morphine gr $\frac{1}{4}$ /mL available. You will give 0.67mL.

$$\mathbf{X \text{ mL} = \text{mL}/\text{gr} \frac{1}{4} \times \text{gr}/60 \text{ mg} \times 10 \text{ mg}/1}$$

16. Vancomycin 100 mg is contained in 250 mL of NS and is to infuse over 2 hours. The set calibration of the tubing is 20 gtts/min. What is the flow rate?

125 mL/hr. 42 gtts/min.

$$X \text{ mL/hr} = 250 \text{ mL} / 2 \text{ hr}$$

$$X \text{ gtts/min} = 20 \text{ gtts/mL} \times 125 \text{ mL/hr} \times \text{hr}/60 \text{ min}$$

17. You have orders to give Tylenol grains 10. The tablets come prepared with 325 mg per tab. How many will you administer? 2 tab.

$$X \text{ tab} = \text{tab}/325 \text{ mg} \times 60 \text{ mg/gr} \times \text{gr } 10/1$$

18. You have orders to infuse Rocephin 1 gram IVPB every 24 hours. The medication comes mixed in 50 mL. The drug book states to give it over 30 min. How fast will you administer the medication? 100 mL/hr.

$$X \text{ mL/hr} = 50 \text{ mL}/30 \text{ min} \times 60 \text{ min/hr}$$

19. You have an IVPB with 60 mg in 100 mL. You are to administer this medication over 1 hour. How fast will you administer this medication? 100 mL/hr.

$$X \text{ mL/hr} = 100 \text{ mL/hr}$$

20. You have orders to give KCL 40 meq IV over 4 hours. The medication comes from pharmacy in 250 mL NS and 20 mL of KCL. How fast will you administer this medication? 67.5 mL/hr.

$$X \text{ mL/hr} = 270 \text{ mL}/4 \text{ hr}$$

