

Calculation Worksheet #2

1. The IV order is for D₅W 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.

$$\frac{\text{Volume} \times \text{Drop factor}}{\text{Time in min}} = \frac{100 \text{ mL} \times 10 \text{ gtt}}{60 \text{ min}} = \frac{1000}{60} = 16.66$$

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

$$\frac{150 \text{ mL}}{30 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}} = \frac{9,000}{30} = 300 \text{ mL/hr rate}$$

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 will you draw up to give?

$$\frac{DV}{H} = \frac{20 \text{ mg} \times \text{mL}}{25 \text{ mg}} = \frac{20}{25} = 0.8 \text{ mL a dose}$$

0.8 x 6 = 4.8 or 5 mL q4h

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 will you draw up to give?

$$\frac{DV}{H} = \frac{3 \text{ mg} \times 1 \text{ mL}}{5 \text{ mg}} = \frac{3}{5} = 0.6 \text{ mL a dose}$$

0.6 x 4 = 2.4 mL q6h

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

$$\frac{DV}{H} = \frac{5,000 \text{ unit} \times 2 \text{ mL}}{10,000 \text{ unit}} = \frac{10,000}{10,000} = 1 \times 2 = 2 \text{ mL}$$

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 would you give q8h?

$$\frac{DV}{H} = \frac{200 \text{ mg} \times 2 \text{ mL}}{300 \text{ mg}} = \frac{400}{300} = 1.3 \text{ mL}$$

7. Medication order: Garamycin 80 mg IVPB over 30 minutes. Available: Garamycin (gentamicin sulfate) 80 mg in 50 mL of D₅W. Calculate the flow rate in mL/hr.

$$\frac{50 \text{ mL}}{30 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hour}} = \frac{3,000}{30} = 100 \text{ mL/hr}$$

8. You have an IV infusing at 125 mL/hr. How long will it take 1500 mL to infuse?

$$1500 \text{ mL} \div 125 = 12 \text{ hours}$$

Elizabeth Orosco

9. Medication order: rocephin g 1 IV every 12 hours over 30 minutes.

Available: rocephin 1 g in 150 mL NS. At what rate would you set your pump?

$$\frac{150 \text{ mL}}{30 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}} = \frac{9,000 \text{ mL}}{30 \text{ hr}} = \boxed{300 \frac{\text{mL}}{\text{hr}} \text{ rate}}$$

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?

$$\frac{600 \text{ mL}}{75 \text{ mL}} = \frac{?}{1 \text{ hr}} = \frac{600 \text{ mL}}{75 \text{ mL}} = \boxed{8 \text{ hours}}$$

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?

$$\frac{DV}{H} = \frac{100 \text{ mg} \times 1 \text{ mL}}{20 \text{ mg}} = \frac{100}{20} = \boxed{5 \text{ mL}}$$

12. Medication order: 50 mg/kg/day. Patient weight: 85.8 pounds. The patient will receive 1,950 mg/day. $85.8 \div 2.2 = 39 \text{ kg}$

$$50 \text{ mg} \times 39 = \boxed{1,950 \text{ mg}}$$

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

$$\frac{2.5 \text{ mL}}{5 \text{ mL}} \times 250 \text{ mg} = 125 \text{ mg} \times 3 = \boxed{375 \text{ mg for day}}$$

($8 \times 3 = 24 \text{ hrs}$)

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 can be administered every 4 hours? $66 \div 2.2 = 30 \text{ kg}$

$$30 \text{ kg} \times 2 \text{ mg} = 60 \text{ mg} \rightarrow \boxed{0.06 \text{ grams}} \text{ or } \boxed{0.1 \text{ g}}$$

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 millimeter of fluid?

$$20 \text{ mg} / 10 \text{ mL}$$

$$20 \div 10 = \boxed{2 \text{ mg}}$$

4 1
4 2
4 3
4 4

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

$$\frac{1,000 \text{ mL}}{6 \text{ hrs}} = \boxed{167 \text{ mL/hr rate}}$$

Elizabeth Orasco

17. Administer gentamicin 1 G/100 mL IVPB over 1 hr. At what rate should the nurse administer the medication?

$$\frac{100 \text{ mL}}{1 \text{ hr}} = \boxed{100 \text{ mL/hr}}$$

18. Administer 1,000 mL D5W to at a rate of 125 mL/hour. How many hours will it take to infuse 1 L? $1,000 \text{ mL} = 1 \text{ L}$

$$\frac{125 \text{ mL}}{\text{hr}} \quad ? \quad = \boxed{8 \text{ hours}}$$
$$\frac{1,000 \text{ mL}}{125 \text{ mL/hr}} = 8 \text{ hours}$$

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?

$$\frac{1,300 \text{ units}}{\text{hour}} \times \frac{250 \text{ mL}}{20,000 \text{ units}} = \frac{325,000 \text{ mL}}{20,000 \text{ units}} = 16.25 \text{ or } \boxed{16 \frac{\text{mL}}{\text{hr}}}$$

20. Administer D5 1/2 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?

$$\frac{100 \text{ mL}}{60 \text{ min}} \times 15 \text{ gtt/mL} = \frac{1,500}{60} = \boxed{25 \text{ gtt/min}}$$

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 will the infusion be completed?

$$\frac{30 \text{ mL}}{1 \text{ hr}} \div 270 = 9 \text{ hours} = \boxed{7:30 \text{ pm}}$$

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

50 mL/hour.

$$\frac{2 \text{ mg}}{\text{hour}} \times \frac{1000 \text{ mL}}{40 \text{ mg}} = \frac{2000 \text{ mL}}{40 \text{ hr}} = \boxed{50 \text{ mL/hr}}$$

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

10 mL/hour. $50 \text{ mcg} = 0.05 \text{ mg}$

$$\frac{0.05 \text{ mg}}{\text{min}} \times \frac{500 \text{ mL}}{150 \text{ mg}} = \frac{25 \text{ mL}}{150 \text{ min}} \times \frac{60 \text{ min}}{1 \text{ hr}} = \frac{1500 \text{ mL}}{150 \text{ hr}} = \boxed{10 \text{ mL/hr}}$$

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

$$\frac{100 \text{ mL}}{30 \text{ min}} \times \frac{40 \text{ min}}{1 \text{ hour}} = \frac{6,000}{30} = \boxed{200 \text{ mL/hr}}$$

25. Administer 1.5 L Lactated Ringers in 12 hours. Calculate the rate of flow if the drop factor is 20 gtt/mL. $12 \text{ hours} = 720 \text{ min}$

$1.5 \text{ L} \rightarrow 1500 \text{ mL}$

$$\frac{1500 \text{ mL} \times 20 \text{ (gtt/mL)}}{720 \text{ min}} = \frac{30,000}{720} = 41.66 \text{ or } \boxed{42 \text{ gtt/min}}$$