







12. Esmolol is ordered for a client. The solution available is 2.5 g in 250 mL D<sub>5</sub>W. The order is to infuse 30 mL/hr. Calculate the dose in mg/min (If rounding is required, round answer to the tenths place)
13. A client weighing 80kg has an order for Intropin to infuse at 3 mcg/kg/min. The solution available is labeled “Intropin 600 mg/ 500 mL D<sub>5</sub>W. Calculate the dose in mg/hour. (If rounding is required, round answer to the nearest whole number)
14. The infusion is labeled “Epinephrine 3 mg in 250 mL D<sub>5</sub>W.” The order reads “Infuse at 5 mL/ hour.” Calculate the dose in mcg/hour.(If rounding is required, round answer to the nearest whole number)
15. The client is prescribed a Pitocin (Oxytocin drip) at 30 ml/hr. The solution available is Pitocin 20 units in 500 mL D<sub>5</sub>W. Calculate the units/hour the client will receive. answer (If rounding is required, round answer to the tenths place)

16. A client is to receive Dobutrex at 3 mcg/kg/min. The label reads Dobutrex 150 mg in 500 mL D5W. The client weighs 90 kg. Calculate the IV rate in mL/hr. answer .(If rounding is required, round answer to the. nearest tenths place)
17. A client is receiving procainamide 1 g in 500 mL D5W at 110 mL/hour. Calculate the mg/hour. .(If rounding is required, round answer to the. nearest whole number)
18. The client has Pronestyl 2g in 250mL of IVF to infuse at 2mg/min. What is the rate in mL/hr?
19. The client has Cardizem 25mg to be infused over 2 minutes. The available vial is labeled 10mg/mL. How many mL(s) a minute will you push?

20. Determine the 24 hour intake /output for the client with the following
- a. 3000 mL NS
  - b. 3 units of Packed RBC's (250 mL each)
  - c. Ampicillin IV in 250 mL D5W every 6 hours
  - d. 220 mL Ensure dietary supplement by gastrostomy tube every 4 hours
  - e. Ileostomy drainage:; 200 mL at 1500; 80 mL at 2300; 96 mL at 0600
  - f. JP drain: 65 mL at 1500; 10 mL at 2300; 25 mL at 0600;
  - g. Coke 120 mL at 0800
  - h. Juice 60 mL at 2100
  - i. Milk 140 mL at 1200
  - j. Urine output: 700 mL at 1500; 750 mL at 2300; 120 mL at 0600

**\*\*\*Please note that the NS will infuse at the same time as other fluids. It will not be stopped during administration of blood or antibiotics.**

## Answers

1. Your client requires Gentamycin Sulfate. The order reads 6mg/ kg/ 24 hours in three equal doses. The patient weighs 188 pounds. The label reads "Gentamycin 70 mg/ mL." How many mLs will be administered for a single dose. (If rounding is required, round answer to the tenths place)

MI/dose  $1\text{ml}/70\text{mg} \times 6\text{mg}/\text{kg}/\text{hr} \times 1\text{kg}/2.2\text{lb} \times 188\text{lb} = 1,128/154 = 7.32467538/3 = 2.44$  or 2.4ml / single dose

2. The patient is to receive Liposyn 400 mL over 3 hours. Calculate the infusion rate by gravity in gtt/min. The set delivers 15 gtt/ mL. (If rounding is required, round answer to the nearest whole number)

Gtts/min.  $400\text{ml}/180\text{min} \times 15\text{gtts} = 6000/180 = 33.33$  or 33 gtts/min

3. The patient is to receive Ampicillin 500mg diluted in 250mL normal saline (NS) over 45 minutes. At what rate would the IV pump be set? (If rounding is required, round answer to the nearest whole number)

MI/hr.  $250\text{ml}/\text{dose} \times \text{dose}/45\text{min} \times 60/1\text{hr} = 15,000/45 = 333.33$  or 333 ml/hr

4. Your client is prescribed 1 unit of blood over the next 4 hours. Each unit = 250 mL. Calculate the gravity infusion rate (gtt/min) with a set that delivers 10 gtt/ mL. (If rounding is required, round answer to the nearest whole number)

Gtt/min.  $10\text{gtt}/\text{ml} \times 250\text{ml}/240\text{min} = 2,500/240 = 10.41$  or 10gtt/ min

5. The client is prescribed Ticarcillin 500 mg from a vial labeled "Ticarcillin 250 mg/10 mL." Calculate the volume in mL you would prepare to administer. (If rounding is required, round answer to the nearest whole number)

MI/ dose  $10\text{ml}/250\text{mg} \times 500\text{mg}/\text{dose} = 5,000/250 = 20\text{ml}/\text{dose}$

6. Calculate the infusion rate by pump (ml/hr). A dose of IV antibiotic is diluted to a total volume of 250 mL to be given IVPB over 30 minutes. (If rounding is required, round answer to the nearest whole number)

MI/hr.  $250\text{ml}/\text{dose} \times \text{dose}/30\text{min} \times 60\text{min}/1\text{hr} = 500\text{ml}/\text{hr}$



7. The client is prescribed Heparin. Calculate the required volume (mLs) for a loading dose of 16,000 units of heparin from a vial labeled "Heparin 10,000 units/mL." (If rounding is required, round answer to the tenths place)

$$\text{mL/dose } 1\text{mL}/10,000 \text{ Units} \times 16,000\text{Units}/ \text{hr} = 1.6\text{mL}/ \text{dose}$$

8. Calculate the infusion rate for a Heparin drip in ml/hr to deliver a maintenance dose of 1200 units/ hour. The Heparin drip is labeled "Heparin 25,000 Units/250 mL intravenous fluid (IVF). (If rounding is required, round answer to the. nearest whole number)

$$\text{mL/hr. } 250\text{mL}/25,000\text{Units} \times 1200\text{Units}/\text{hour} = 300,000/25,000 = 12 \text{ mL}/ \text{hr}$$

9. Your client in ketoacidosis weighs 175 pounds. Calculate the maintenance dose (units per hour) for an Insulin drip at 0.5units/ kg/ hour. (If rounding is required, round answer to the. nearest to the tenths place)

$$\text{units}/\text{hour. } 0.5\text{Units}/\text{kg}/\text{hr} \times 1\text{kg}/2.2 \text{ lbs} \times 175 \text{ lbs} = 87.5/2.2 = 39.77 \text{ or } 39.8$$

10. A client with asthma weighs 127 pounds and is to be started on an aminophylline drip. Calculate the loading dose of aminophylline (mg) at 3mg/kg.(If rounding is required, round answer to the. nearest whole number)

$$\text{Mg}/\text{dose. } 3\text{mg}/\text{kg} \times 1\text{kg}/2.2\text{lb} \times 127\text{lb} = 381/2.2 = 173.18 \text{ or } 173\text{mg}$$

11. Calculate the infusion rate in ml/hr for a medication diluted in NS to a total volume of 80 mL to be given over 15 minutes by pump.(If rounding is required, round answer to the. nearest whole number)

$$\text{mL}/\text{hr. } 80\text{mL}/\text{dose} \times \text{dose}/15\text{min} \times 60\text{min}/\text{hr.} = 4,800/15 = 320 \text{ mL}/ \text{hr}$$

12. Esmolol is ordered for a client. The solution available is 2.5 g in 250 mL D5W. The order is to infuse 30 mL/hr. Calculate the dose in mg/min (If rounding is required, round answer to the tenths place)

$$2500\text{mg}/250\text{mL} \times 30\text{mL}/\text{hr} \times 1\text{hr}/60\text{min} = 75,000/15,000 = 5\text{mg}/\text{min}$$

13. A client weighing 80kg has an order for Intropin to infuse at 3 mcg/kg/min. The solution available is labeled "Intropin 600 mg/ 500 mL D5W. Calculate the dose in mg/hour. (If rounding is required, round answer to the nearest whole number)

Mg/hr.  $3 \text{ mcg/kg/hr} \times 1 \text{ mg}/1,000\text{mcg} \times 80 \text{ kg} \times 60\text{min/hr} = 14,400/1,000 = 14.4$  or 15mg/hr

14. The infusion is labeled "Epinephrine 3 mg in 250 mL D5W." The order reads "Infuse at 5 mL/hour." Calculate the dose in mcg/hour.(If rounding is required, round answer to the nearest whole number)

Mcg/hr.  $3\text{mg}/250\text{ml} \times 5\text{ml/hr} \times 1000\text{mcg}/1\text{mg} = 15,000/250 = 60\text{mcg/hr}$

15. The client is prescribed a Pitocin (Oxytocin drip) at 30 ml/hr. The solution available is Pitocin 20 units in 500 mL D5W. Calculate the units/hour the client will receive. answer (If rounding is required, round answer to the tenths place)

$20\text{Units}/500\text{ml} \times 30\text{ml/hr} = 600/500 = 1.2 \text{ Units/hr}$

16. A client is to receive Dobutrex at 3 mcg/kg/min. The label reads Dobutrex 150 mg in 500 mL D5W. The client weighs 90 kg. Calculate the IV rate in mL/hr. answer (If rounding is required, round answer to the nearest tenths place)

ML/hr.  $500\text{ml}/150\text{mg} \times 1\text{mg}/1,000\text{mcg} \times 3 \text{ mcg}/\text{kg}/\text{min} \times 90\text{kg} \times 60 \text{ min}/1 \text{ hr} = .54\text{ml/hr}$

17. A client is receiving procainamide 1 g in 500 mL D5W at 110 mL/hour. Calculate the mg/hour. (If rounding is required, round answer to the nearest whole number)

Mg/hr.  $1000\text{mg}/500\text{ml} \times 110\text{ml/hr} = 110,000/500 = 220\text{mg/hr}$

18. The client has Pronestyl 2g in 250mL of IVF to infuse at 2mg/min. What is the rate in mL/hr?

ML/hr.  $250\text{ml}/2000\text{mg} \times 2\text{mg}/\text{min} \times 60\text{min}/1\text{hr} = 30,000/2,000 = 15\text{ml/hr}$

19. The client has Cardizem 25mg to be infused over 2 minutes. The available vial is labeled 10mg/mL. How many mL(s) a minute will you push?

ml/min.  $25\text{mg} / 2\text{min} \times 1\text{ml} / 10\text{mg} = 1.25\text{ml} / \text{min}$

20. Determine the 24 hour intake /output for the client with the following a. 3000 mL NS b. 3 units of Packed RBC's (250 mL each) c. Ampicillin IV in 250 mL D5W every 6 hours d. 220 mL Ensure dietary supplement by gastrostomy tube every 4 hours e. Ileostomy drainage;; 200 mL at 1500; 80 mL at 2300; 96 mL at 0600 f. JP drain: 65 mL at 1500; 10 mL at 2300; 25 mL at 0600; g. Coke 120 mL at 0800 h. Juice 60 mL at 2100 i. Milk 140 mL at 1200 j. Urine output: 700 mL at 1500; 750 mL at 2300; 120 mL at 0600

Input =  $3000 + 750 + 1320 + 120 + 60 + 140 = 5390\text{ml}$

Output =  $200 + 80 + 96 + 65 + 10 + 25 + 700 + 750 + 120 = 2,046\text{ml}$ .