

Additional Math Practice 1

1. A patient is to receive dobutamine at a rate of 10 mL/hr. The drug is labeled 250 mg/250 mL. The patient weighs 82 kg. How many mcg/kg/min are infusing?

$$\begin{array}{l} 250 \times 1000 \\ \downarrow \\ 250,000 \text{ mcg} / 250 \\ 1000 \text{ mcg/mL} \end{array} \quad \frac{1000 \times 10}{82 \times 60} = \frac{10000}{4920} = \boxed{2 \text{ mcg/kg/min}}$$

2. If norepinephrine is infusing at 13 mL/hr, what would the nurse expect the dose to be in mcg/min? The bag is labeled norepinephrine 4 mg/250 mL. The patient weighs 94 kg. Round to the nearest tenth.

$$\frac{16 \times 13}{60} = \frac{4000 / 250}{16 \text{ mcg/mL}} = \boxed{3.5 \text{ mcg/min}}$$

3. A patient's blood pressure has decreased to 70/48 mmHg following a significant head injury. The primary healthcare provider writes an order to start a Dopamine infusion at 10 mcg/kg/min. Pharmacy sends a bag labeled Dopamine 400 mg/250 mL. The patient weighs 68 kg. What rate will the pump need to be set on to achieve the desired dose?

$$\frac{68 \times 10 \times 60}{1600} = 25.5 \quad \boxed{26 \text{ mL/hr}}$$

4. The nurse receives an order to titrate propofol for sedation. The patient is currently receiving 8 mcg/kg/min. Determine the rate that is currently infusing in mL/hr. The bottled is labeled propofol 1 GM/100mL. The patient weighs 90 kg.

$$\frac{90 \times 8 \times 60}{10} = \boxed{4 \text{ mL/hr}}$$

5. The nurse receives an order to initiate a Cordarone infusion at 0.5 mg/min. The drug is labeled 450 mg/250mL. How many mL/hr should the pump be set on to deliver the correct dose?

$$\frac{0.5}{450} \times 250 \times 60 = \boxed{17 \text{ mL/hr}}$$

6. Nicardipine is to be given at a rate of 5 mg/hr. The drug is supplied as 50 mg/250 mL. How many mL/hr should the pump be set on to deliver the correct dose?

$$\frac{5}{50} \times 250$$

25 mL/hr

7. Heparin is ordered at 800 units/hr. The drug is supplied as 25000 units/500 mL. What rate should the pump be set at?

$$\frac{800}{25000} \times 250$$

16 mL/hr

8. The patient is to receive 10 mcg/min of norepinephrine. The drug is supplied as 16 mg/250 mL. The patient weighs 83 kg. How many mL/hr will you place the pump on?

$$16 \times 1000 = 16,000 \text{ mcg} / 250 \text{ mL}$$

$$\frac{10}{16000} \times 250 \times 60$$

9 mL/hr

9. The patient is to receive Rocephin 1 GM over 90 minutes. The drug is supplied as 1 GM/100 mL. The drop factor is 20. How many gtt/min should be delivered?

$$\frac{100 \times 20}{90} = 22 \text{ gtt/min}$$

10. The patient is to receive Cipro 400 mg IV over 1 hour. The bag of Cipro comes from the pharmacy labeled Cipro 400 mg in 100 mL D5W. The IV tubing delivers 12 gtt/mL. How many drops per minute (gtt/mL) will you deliver?

$$\frac{100 \times 12}{60}$$

20 gtt/min

11. The patient is on a dopamine drip infusing at 35 mL/hr. The label reads 400 mg Dopamine is 500 mL D5W. The client weighs 62 kg. How many mcg/kg/min is the client receiving? Round to the nearest tenth.

$$\frac{800 \times 35}{62 \times 60} = \frac{28000}{3720}$$

7.5 mcg/kg/min

12. The nurse receives an order to infuse Nitroglycerine at 60 mcg/min. It is supplied as 25 mg in 250 mL of normal saline. What rate (mL/hr) would the rate need to be set at?

$$\frac{60}{25,000} \times 250 \times 60$$

30 mL/hr

13. The patient is on an insulin drip. The current dose is 6 units/hr. The pharmacy sends a bag with 50 units regular insulin in 100 mL normal saline. At what rate (mL/hr) would you set the IV pump?

$$\frac{6}{50} \times 100$$

12 mL/hr

14. The patient is to receive 3 units of blood over 5 hours. Each unit contains 250 mL of blood. How many drops per minute (gtt/min) is needed to give the blood over the required time? The IV tubing drop factor is 20 gtt/mL.

$$\frac{750 \times 20}{300} = 50 \text{ gtt/min}$$

Math Practice 2

1. The order is to infuse Cordarone 0.5 mg/min. Supplied is 450 mg/250 mL. What rate would you place on the pump? Round to the nearest tenth.

16.7 mL/hr

$$\frac{0.5}{450} \times 250 \times 60$$

2. The order is for Cordarone 16.7 mL/hr. Supplied is 450mg/250mL. How many mg/min are infusing?

$$\frac{450}{250} = 1.8 \text{ mg/mL}$$

0.5 mg/min

3. Dobutamine is infusing at 15 mL/hr. The client weighs 203 lbs. The concentration is 500mg/250mL. Calculate the dose in mcg/kg/min.

92.27 kg
↑

5mcg/kg/min

500,000mcg | 250mL
2000mcg/mL

$$\frac{2000 \times 15}{92.27 \times 60}$$

4. Heparin is ordered at 1200 units/hr. The drug is supplied as 25000 units/500mL. What rate should be placed on the pump?

$$\frac{1200}{2500} \times 500 = 24 \text{ mL/hr}$$

5. The client is receiving Levophed 10 mcg/min. The client weighs 83 kg. The drug is supplied as 8mg/250mL. Calculate the appropriate rate for the pump. Round to the nearest whole number.

8000mcg | 250mL

$$\frac{10}{8000} \times 250 \times 60 = 19 \text{ mL/hr}$$

6. Infuse propofol at 17 mL/hr. The drug is supplied as 1 GM/100mL. The client weighs 80 kg. Calculate the dose in mcg/kg/min. Round to the nearest tenth.

35mcg/kg/min

$$\frac{100 \text{ mcg/mL} \times 17}{80 \times 60} = \frac{1700}{4800}$$

7. The client is on an Insulin drip. The current dose is 8 units/hr. The bag is labeled 50 units/100 mL. What rate should you set on the pump to achieve the appropriate dose?

16mL/hr

$$\frac{8 \text{ u}}{50 \text{ u}} \times 100 \text{ mL}$$

8. Heparin is infusing at 10 mL/hr. The bag is labeled 25,000 units/500 mL. How many unit/hr are

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50u/mL

$$\frac{10}{50}$$

500u/hr

infusing?

9. Lidocaine 2 GM/500mL is infusing at 30 mL/hr. How many mg/min are infusing?

$$.004 \text{ mL}$$

$$2 \text{ mg/min}$$

10. The order is to infuse Fentanyl 100 mcg/hr. The bag is labeled 1 mg/250mL. How many mL/hr should you infuse?

$$\frac{1000 \text{ mcg}}{250 \text{ mL}} = 4 \text{ mcg/mL}$$

$$25 \text{ mL/hr}$$

11. Labetolol is infusing at 30 mL/hr. The bag is labeled 100mg/100mL. How many mg/min are infusing?

$$\frac{1 \text{ mg}}{1 \text{ mL}} \times 30 \div 60 = .5$$

$$0.5 \text{ mg/min}$$

12. Heparin is infusing at 24 mL/hr. The bag is labeled 25,000 units/500mL. How many units/hr are infusing?

$$\frac{25,000}{500} = 50$$

$$2400 \div 2$$

$$1200 \text{ u/hr}$$

Math Practice 3

1. The patient is on an Insulin drip infusing at 5 units/hr. The bag is labeled 100 units insulin in 250 ml normal saline. At what rate should the pump be set?

$$12.5 \text{ mL/hr}$$

$$25000$$

2. Heparin is ordered to be given at 800 units/hr. The drug is supplied as 25000 units/500ml. At what rate should the pump be set?

$$\frac{800}{5}$$

16 mL/hr

3. The patient is receiving norepinephrine (Levophed) at 23 ml/hr to maintain a mean arterial pressure greater than 90. The drug is supplied as 4 mg/250ml. The patient weighs 87kg. How many mcg/min are infusing?

$$\frac{16 \times 23}{87 \times 60} = \frac{368}{5220}$$

6.1 mcg/kg/min

4. The patient is to receive ceftriaxone (Rocephin) 500mg over 40 minutes. The drug is supplied as 1GM/50ml. The drop factor is 60. How many gtt/min should you deliver?

$$\frac{25 \times 60}{40}$$

37.5 gtt/min

5. Give promethazine (Phenergan) 12.5mg IV now. The drug is supplied as 40mg/10ml. How many mLs will you deliver?

$$\frac{12.5}{40} \times 10$$

3.1 mL

6. Dobutrex (Dobutamine) is infusing at 15 ml/hr. Calculate the dose in mcg/kg/min. The concentration is 500mg/250ml. The patient weighs 203 lbs.

$$500,000 \text{ mcg} / 250 \text{ mL}$$

$$92.27 \text{ kg}$$

5.4 mcg/kg/min

7. The order is to infuse amiodarone (Cordarone) 0.5 mg/min. The drug is supplied as 450mg/250 ml of D5W. At what rate should the pump be set at?

$$1.8 \text{ mg} / \text{mL}$$

16.7 mL/hr

8. Propofol (Diprivan) is infusing at 7 ml/hr. The drug is supplied as 1GM/100ml. The patient weighs 160 lbs. How many mcg/kg/min is the patient receiving?

$$72.72 \text{ kg}$$

$$\frac{1000 \text{ mcg/ml} \times 7}{72.72 \times 60}$$

$$16 \text{ mcg/kg/min}$$

9. Nitroprusside (Nipride) is ordered to maintain a systolic blood pressure less than 180. The starting dose is 0.4mcg/kg/min. The drug is supplied as 50mg/250ml and the patient weighs 94kg. What rate should be set on the pump?

$$\frac{94 \times 0.4 \times 60}{0.2}$$

$$11.3 \text{ mL/hr}$$

10. The order is for metoprolol (Lopressor) 2.5mg IV push for acute chest pain. The drug is supplied as 10mg/2ml. How many mL's should you deliver?

$$\frac{2.5}{10} \times 2$$

$$0.5 \text{ mL}$$

11. The patient is receiving diltiazem (Cardizem) 10ml/hr. The drug is supplied as 250mg/500ml. How many mg/hr are infusing?

$$0.5 \text{ mg/mL}$$

$$5 \text{ mg/hr}$$

12. Xylocaine (Lidocaine) is infusing at 30ml/hr for ventricular tachycardia. The drug is supplied as 2GM/500ml. How many mg/min are infusing?

$$200 \text{ mL}$$

$$2 \text{ mg/min}$$

13. The patient is to receive Cipro 400 mg IV over 1 hour. You receive a bag from the pharmacy labeled Cipro 400 mg in 100 ml D5W. The IV tubing delivers 12 gtt/ml. How many drops per minute (gtt/min) will you deliver?

$$\boxed{20 \text{ gtt} / \text{min}}$$

$$\frac{100 \times 12}{60}$$

14. The patient is on a Dopamine drip infusing at 35 ml/hr. The label reads 400 mg Dopamine in 500 ml D5W. The patient weighs 62 kg. How many mcg/kg/min is the patient receiving?

$$\boxed{7.5 \text{ mcg} / \text{kg} / \text{min}}$$

$$\frac{400,000 \times 35}{62 \times 60}$$

15. The order is to begin a Nitroglycerin infusion at 5 mcg/min. The bottle is labeled 25 mg/ 250 ml D5W. At what rate will you set the pump?

$$\boxed{3 \text{ mL} / \text{hr}}$$

$$\frac{25,000 \text{ mcg} / 250 \text{ mL}}{100 \text{ mcg} / \text{mL}}$$