

## 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?

$$\frac{250}{250} = 1000$$

1000 mcg

$$\frac{1000 \times 10}{82 \times 60} = \frac{10,000}{4920} = 2.03 \approx \boxed{2 \text{ mcg/kg/min}}$$

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.

$$\frac{4 \text{ mg}}{250 \text{ mL}} = 16 \text{ mcg}$$

$$\frac{16 \times 13}{60} = \frac{208}{60} = 3.46 \approx \boxed{3.5 \text{ mcg/min}}$$

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?

$$\frac{68 \times 10 \times 60}{400000 / 250} = \frac{408000}{1600} = 25.5 \approx \boxed{26 \text{ mL/hr}}$$

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 bottle is labeled propofol 1 GM/100mL. The patient weighs 90 kg.

$$\frac{1 \text{ GM}}{100 \text{ mL}} = 10 \text{ mg} = 10,000 \text{ mcg}$$

$$\frac{90 \times 8 \times 60}{10,000} = \frac{43200}{10,000} = 4.32 \approx \boxed{4 \text{ mL/hr}}$$

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?

$$\frac{450}{250} = 1.8$$

$$\frac{0.5 \times 60}{1.8} = \frac{30}{1.8} = 16.66 \approx \boxed{17 \text{ mL/hr}}$$

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?

$$\frac{250 \text{ mL}}{50 \text{ mg}} = 5 \times 5 \text{ mg/hr} = \boxed{25 \text{ mL/hr}}$$

7. Heparin is ordered at 800 units/hr. The drug is supplied as 25000 units/500 mL = 50. What rate should the pump be set at?

$$\frac{800}{50} = \boxed{16 \text{ mL/hr}}$$

8. The patient is to receive 10 mcg/min of norepinephrine. The drug is supplied as 16,000 mcg - 16 mg/250 mL. The patient weighs 83 kg. How many mL/hr will you place the pump on? 9 mL/hr

$$\frac{16}{250} \times \frac{16,000}{250} = 44 \quad \frac{10 \times 60}{44} = \frac{600}{44} = 9.37 \approx \boxed{9 \text{ mL/hr}}$$

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?

$$\frac{100 \times 20}{90} = 22.22 = \boxed{22 \text{ gtt/min}}$$

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?

$$\frac{100 \times 12}{60} = \boxed{20 \text{ gtt/mL}}$$

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 weights 62 kg. How many mcg/kg/min is the client receiving? Round to the nearest tenth.

$$\frac{400}{500} \times \frac{800}{62} \times \frac{35}{60} = \frac{800 \times 35}{62 \times 60} = \frac{28000}{3720} = 7.52 = \boxed{7.5 \text{ mcg/kg/min}}$$

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?

$$\frac{25000 \text{ mcg}}{250} = 100 \quad \frac{60 \times 60}{100} = \frac{3600}{100} = \boxed{36 \text{ mL/hr}}$$

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?

$$\frac{50}{100} = .5 \quad \frac{6}{.5} = \boxed{12 \text{ mL/hr}}$$

14. The patient is to receive 3 units of blood over 5 hours. Each unit contains 250 mL or 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.

$$\frac{250}{5} = \boxed{50 \text{ gtt/min}}$$

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.

$$\frac{450}{250} = 1.8 \quad \frac{0.5 \times 60}{1.8} = \frac{30}{1.8} = 16.666 = \boxed{16.7 \text{ mL/hr}}$$

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

$$\frac{450}{250} = 1.8$$

$$\frac{16.7 \times 1.8}{60} = \frac{30.06}{60} = .501 = \boxed{0.5 \text{ mg/min}}$$

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.

$$\frac{2000 \times 15}{92.27 \times 60} = \frac{30000}{5536.2} = 5.41 = \boxed{5 \text{ mcg/kg/min}}$$

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

$$\frac{25000}{500} = 50 \quad \frac{1200}{50} = \boxed{24 \text{ mL/hr}}$$

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.

$$\frac{8000}{250} = 32 \quad \frac{10 \times 60}{32} = \frac{600}{32} = 18.75 = \boxed{19 \text{ mL/hr}}$$

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.

$$\frac{10}{100} = 0.10$$

$$\frac{10,000 \times 17}{80 \times 60} = \frac{170000}{4800} = 35.41 = \boxed{35 \text{ mcg/kg/min}}$$

10mg

10000mcg

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?

$$\frac{50}{100} = .5 \quad \frac{8}{.5} = \boxed{16 \text{ mL/hr}}$$

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

$$\frac{25000}{500} = 50 \times 10 = \boxed{500 \text{ unit/hr}}$$

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

$\frac{2g}{500 \text{ mL}} = \frac{4 \text{ mg}}{500 \text{ mL}}$

$$\frac{4 \times 30}{60} = \boxed{2 \text{ mg/min}}$$

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

$$\frac{1000 \text{ mcg}}{250 \text{ mL}} = 4 \quad \frac{100 \text{ mcg/hr}}{4} = \boxed{25 \text{ mL/hr}}$$

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

$$\frac{100}{100} = 1 \quad \frac{1 \times 30}{60} = \boxed{0.5 \text{ mg/min}}$$

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

many units/hr are infusing?

$$\frac{25,000}{500} = 50 \times 24 = \boxed{1200 \text{ units/hr}}$$

### 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?

$$\frac{100}{250} = .4 \quad \frac{5}{.4} = \boxed{12.5 \text{ mL/hr}}$$

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

$$\frac{25000}{500} = 50 \quad \frac{800}{50} = \boxed{16 \text{ mL/hr}}$$

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?

$$\frac{4000 \text{ mcg}}{250 \text{ mL}} \times 23 = 368 / 60 = \boxed{6.1 \text{ mcg/Kg/min}}$$

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?

$$\frac{50 \times 60}{40} = \frac{3000}{40} = \frac{75}{1} = \boxed{375 \text{ gtt/min}}$$

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

$$\frac{40}{10} = 4 \quad \frac{12.5}{4} = 3.125 = \boxed{3.1 \text{ mL}}$$

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.

$$\frac{2000 \times 2000 \times 15}{92.27 \times 60} = \frac{30,000}{5536.2} = 5.41 \approx \boxed{5.4 \text{ mcg/kg/min}}$$

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?

$$\frac{450}{250} = 1.8 \quad \frac{0.5 \times 60}{1.8} = \frac{30}{1.8} = 16.66 \approx \boxed{16.7 \text{ mL/hr}}$$

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?

$$\frac{1 \text{ gm}}{100} = \frac{1000 \text{ mg}}{100} = 10 \text{ mg} = 10,000 \text{ mcg}$$

$$\frac{10,000 \times 7}{72.72 \times 60} = \frac{70,000}{4363.2} = 16.05 \approx \boxed{16 \text{ mcg/kg/min}}$$

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?

$$\frac{94 \times 0.4 \times 60}{200} = \frac{2256}{200} = 11.28 \approx \boxed{11.3 \text{ mL/hr}}$$

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?

$$\frac{10}{2} = 5 \quad \frac{2.5}{5} = \boxed{0.5 \text{ mL}}$$

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

$$\frac{250}{500} = .5 \times 10 = \boxed{5 \text{ mg/hr}}$$

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

$$\frac{2000}{500} = 4 \quad \frac{4 \times 30}{60} = \frac{120}{60} = \boxed{2 \text{ mg/min}}$$

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?

$$\frac{100 \times 12}{60} = \frac{1200}{60} = \boxed{20 \text{ gtt/min}}$$

14. The patient is on a Dopamine drip infusing at 35 ml/hr. The label reads 400 mg 400,000mcg Dopamine in 500 ml D5W. The patient weighs 62 kg. How many mcg/kg/min is the patient receiving?

$$\frac{400,000}{500} \quad \frac{800 \times 35}{62 \times 60} = \frac{28000}{3720} = 7.52 = \boxed{7.5 \text{ mcg/kg/min}}$$

15. The order is to begin a Nitroglycerin infusion at 5 mcg/min. The bottle is labeled 25 25,000mcg mg/ 250 ml D5W. At what rate will you set the pump?

$$\frac{25000}{250} = 100 \quad \frac{5 \times 60}{100} = \frac{300}{100} = \boxed{3 \text{ mL/hr}}$$