

IM 7 Math Module

Complete the required math problems and check your answers.

Langston Westbrook

Drop Factor Problems

1. Infuse 1.5 gram of a medication over 3 hours. The drug is supplied as 1.5 gram/250mL. The drip factor is 15. How many gtt/min will you infuse? (Round to the nearest whole number)

$$250/3 = 83.33/60 = 1.38 \times 15 = 20.83 \text{ rounded: } 21 \text{ gtt/min}$$

2. An order has been written to give 1 gram of a medication over 30 minutes. The drug is supplied as 1 gram/50mL. The gtt factor is 60. How many gtt/min will you infuse?

$$50/30 = 1.66 \times 60 = 100 \text{ gtt/min}$$

3. The nurse is to give 500mg IV of a medication over 1 hr. The drug is supplied as 1 gram/250mL. The gtt factor is 15. How many gtt/min will you infuse? (Round to the nearest whole number)

$$250/2 = 125/60 = 2.08 \times 15 = 31.25 \text{ rounded: } 31 \text{ gtt/min}$$

4. The patient is to receive 400 mg IV of a medication over 1 hour. You receive an IV bag from the pharmacy labeled 400 mg in 100 mL D5W. The IV tubing delivers 12 gtt/mL. How many drops per minute (gtt/min) will the nurse deliver?

$$100/60 = 1.66 \times 12 = 20 \text{ gtt/min}$$

mL/hr Infuse over time

5. The physician writes an order to give 1000mL of intravenous fluid over 8hrs. How many mL/hr will you infuse?

$$1000/8 = 125 \text{ mL/hr}$$

6. Infuse 1000 mLs of intravenous fluid over 4 hrs. How many mL/hr will you set on the pump?

$$1000/4 = 250 \text{ mL/hr}$$

7. A physician orders 1000 mg of a medication to be given every 6 hours over 1.5 hours. The medication is delivered with 1000 mg in 250 mL. How many mL/hr will you set the pump? (Round to the nearest whole number)

$$1000/1.5 = 666.66 \text{ rounded: } 667 \text{ mL/hr}$$

IV Push

8. An order is received for 75mcg IV push of a medication now. The drug is supplied as 100mcg/2mL. How many mL will you give?

$$75/100 = 0.75 \times 2 = 1.5 \text{ mL}$$

9. The patient is to receive 5mg of a medication IV push. The drug is supplied as 20mg/5mL. How many mL will you give? (Do not round your final answer)

$$5/20 = 0.25 \times 5 = 1.25 \text{ mL}$$

IM 7 Math Module

Complete the required math problems and check your answers.

10. The order is to give 2mg IV push of a medication now. The drug is supplied as 10mg/1mL. How many mL will you give?

$$2/10=0.2 \times 1 = \underline{0.2 \text{ mL}}$$

IM 7 Math Module

Complete the required math problems and check your answers.

Mcg/kg/min or Mcg/min

11. The patient is receiving an intravenous medication currently infusing at 142 mL/hr. The IV bag of reads 50 mg in 500 mL D5W. The patient weighs 175 lbs. How many mcg/kg/min are infusing? (Round to the nearest tenth)

$$175/2.2=79.5\text{kg}$$

$$50 \times 1000 = 50000 / 500 = 100 \text{mcg/ml} \times 142 = 14200 \text{mcg/hr} / 60 = 236.66 / 79.6 = 2.97 \text{ rounded: } 3 \text{mcg/kg/min}$$

12. The physician has ordered a medication that states to start at 1 mcg/kg/min and titrate as needed. The IV bag of medication contains 250 mg in 500 mL D5W. The patient weighs 70 kg. How many mL/hr should the IV pump be set at to achieve the starting dose? (Round to the nearest whole number)

$$70 / 250000 = 0.00028 \times 0.14 \text{ml/min} \times 60 = 8.4 \text{ml/hr rounded: } 8 \text{ml/hr}$$

13. The patient is currently receiving a medication at 12 mL/hr. The bottle reads 100 mg in 250 mL D5W. How many mcg/min is the patient receiving?

$$100 / 250 = 0.4 \times 1000 = 400 \text{mcg} \quad 12 / 60 = 0.2 \text{ml} \quad 400 \times 0.2 = 80 \text{mcg/min}$$

14. The physician has ordered a medication to start at 2 mcg/kg/min. The patient weighs 165 lbs. The IV bag reads 800 mg in 500 mL D5W. What rate would the nurse set on the infusion pump? (Round to the nearest tenth)

$$165 / 2.2 = 75 \text{kg} \times 2 = 150 \text{mcg/min} \times 60 = 9000 \text{mcg/hr} \quad 800 / 500 = 1.6 \times 1000 = 1600 \text{mcg/ml} \\ 9000 / 1600 = 5.62 \text{ rounded: } 5.6 \text{ml/hr}$$

15. The physician has written an order to increase the medication to 4 mcg/kg/min. The IV bag reads 64 mcg/mL. What rate would the nurse set on the IV pump? (Round to the nearest tenth)

$$4 \times 60 = 240 / 64 = 3.75 \text{ rounded: } 3.8 \text{ml/hr}$$

16. The patient is on a medication drip infusing at 15 mL/hr. The label reads 50 mcg/mL. The patient weighs 65 kg. How many mcg/min is the patient receiving? (Do not round)

$$50 \times 15 = 750 \text{mcg/hr} / 60 = 12.5 \text{mcg/min}$$

Heparin/Insulin or mg/hr

17. The physician orders a heparin infusion at 500 units/hr. The IV bag of medication reads 25,000 units in 250 mL D5W. How many mL/hr should be showing on the IV pump?

$$25000 / 250 = 100 \text{units/ml} \quad 500 / 100 = 5 \text{ml/hr}$$

18. The patient is on a regular insulin drip infusing at 5 units/hr. The bag is labeled 100 units in 250 mL NS. At what rate should the pump be infusing? Round to the nearest whole number.

$$100 / 250 = 0.4 \text{units/ml} \quad 5 / 0.4 = 12.5 \text{ml/hr rounded: } 13 \text{ml/hr}$$

IM 7 Math Module

Complete the required math problems and check your answers.

Burns (Parkland Formula) Do not round weights

19. A 200-pound patient presents to the emergency department with 50% total body surface area (TBSA) burn. How many liters of fluid would be given in the first 24 hours? (Round to the nearest whole number)

$$200/2.2=90.9\text{kg} \quad 4 \times 50 \times 90.9 = 18180/1000 = 18.18 \quad \text{rounded: } 18\text{L}$$

20. A 150-pound patient presents to the emergency department with 75% total body surface area (TBSA) burn. How many liters of fluid would be given in the first 24 hours? (Round to the nearest whole number)

$$150/2.2=68.18\text{kg} \quad 4 \times 75 \times 68.18 = 20454/1000 = 20.454 \quad \text{rounded: } 20\text{L}$$