

IM 7 Math Module

Complete the required math problems and check your answers.

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)
- $3 \cdot 60 = 180$
 $250 \text{ mL} / 3 \text{ hr}$
 $250 / 180 \text{ min}$
 $\frac{15 \times 250}{180} =$
- 21 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?
- $\frac{60 \times 50}{30} = 100$
- 100 gtt/min
3. The nurse is to give ^{$= 0.5 \text{ g}$} 500mg IV of a medication over ^{60} 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)
- $.5 \text{ g} / 125 \text{ mL}$
 $\frac{15 \times 125}{60} = 31.25$
- 31 gtt/min
4. The patient is to receive 400 mg IV of a medication over ^{60 min} 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?
- $\frac{100 \cdot 12}{60} = 20 \text{ gtt/min}$

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?
- $1,000 \div 8 = 125 \text{ mL/hr}$
6. Infuse 1000 mLs of intravenous fluid over 4 hrs. How many mL/hr will you set on the pump?
- $1,000 / 4 = 250 \text{ mL/hr}$
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)
- $250 \div 1.5 = 167 \text{ mL/hr}$

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?
- $\frac{75(2)}{100} = 1.5 \text{ mL}$
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)
- $\frac{5(5)}{20} = 1.25 \text{ mL}$
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?
- $\frac{2 \text{ mg}}{10} = 0.2 \text{ mL}$

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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)
- Handwritten: $175 \text{ lbs} \div 2.2 = 79.5 \text{ kg}$, $\frac{50000 \text{ mcg}}{500 \text{ mL}} = 100 \text{ mcg/mL}$, $\frac{142 \cdot 100}{60} = 236.66$, $\frac{236.66}{79.5} = 2.977$. Answer: $\boxed{3}$ 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)
- Handwritten: $70 \text{ mcg/kg/min} \cdot 70 \text{ kg} = 4900 \text{ mcg/min}$, $\frac{4900 \text{ mcg} \cdot 60 \text{ min}}{250000 \text{ mcg}} = 117.6 \text{ mL/hr}$. Answer: $\boxed{118}$ 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?
- Handwritten: $100,000 \div 250 = 400 \text{ mcg/mL}$, $400 \cdot 12 = 4800 \text{ mcg/hr}$, $\frac{4800}{60} = 80 \text{ mcg/min}$. Answer: $\boxed{80}$ 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)
- Handwritten: $165 \text{ lbs} \div 2.2 = 75 \text{ kg}$, $2 \text{ mcg/kg/min} \cdot 75 \text{ kg} = 150 \text{ mcg/min}$, $\frac{150 \text{ mcg} \cdot 60 \text{ min} \cdot 500}{800,000} = 5.625 \text{ mL/hr}$. Answer: $\boxed{5.6}$ 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)
- Handwritten: $4 \cdot 60 = 240 \text{ mcg/hr}$, $\frac{240}{64} = 3.75 \text{ mL/hr}$. Answer: $\boxed{3.8}$ 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)
- Handwritten: $50 \cdot 15 = 750 \text{ mcg/hr}$, $\frac{750}{60} = 12.5 \text{ mcg/min}$. Answer: $\boxed{12.5}$ 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?
- Handwritten: $\frac{500 \cdot 250}{25,000} = 5 \text{ mL/hr}$. Answer: $\boxed{5}$ 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.
- Handwritten: $\frac{5(250)}{100} = 12.5 \text{ mL/hr}$. Answer: $\boxed{13}$ mL/hr

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)
- Handwritten: $4 \text{ mL} \times \text{kg} \times \% = 4 \times 90.9 \times 50 = 18,180 \text{ mL} = 18 \text{ L}$. Answer: $\boxed{18}$ 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)
- Handwritten: $4 \times 68.2 \times 75 = 20,460 \text{ mL} = 20 \text{ L}$. Answer: $\boxed{20}$ L