

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)

$$\frac{250 \times 15}{180} = 21$$

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?

$$\frac{50 \times 60}{30} = 100$$

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)

$$1g = 1000mg \quad \frac{500}{1000} (250) = 125 \times 15 = \frac{1875}{60} \text{ gtt} = 31.25 = \boxed{31 \text{ gtt/min}}$$

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?

mL/hr Infuse over time $\frac{100 \times 12}{60} = 20$

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

$$100/8 = 125$$

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

$$1000/4 = 250$$

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)

IV Push $\frac{1000}{1000} (250) \div \frac{250}{1.5} = 1.5 \times 1.5 = \boxed{1.5 \text{ mL/hr}}$

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?

$$\frac{75}{100} \times 2 = 1.5$$

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)

$$\frac{5}{20} (5) = \boxed{1.25 \text{ mL}}$$

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?

$$\frac{2}{10} (1) = 0.2 \text{ mL}$$

□ 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)

$$\frac{142 \times 100 \text{ mcg/mL}}{29.54 \times 100} = 2.91 \approx 3$$

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)

$$250 \times 1000 = 250,000 = 600 \text{ mcg/mL} \quad \frac{70}{600} = 0.116 \times 60 = 8.4 = 8 \text{ mL/hr}$$

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?

$$0.4 \text{ mcg/mL} \quad 0.4 \times 12 = 4.8 = \frac{4,800 \text{ mcg}}{60} = 80 \text{ mcg/min}$$

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)

$$800 \text{ mg} = \frac{800,000 \text{ mcg}}{500} = 1,600 \text{ mcg/mL} \quad 2 \times 76 = 150 \quad \frac{150}{1,600} = 0.09375 \times 60 = 5.6 \text{ mL/hr}$$

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)

$$\frac{4}{64} = 0.0625 \times 60 = 3.75 = 3.8 \text{ mL/hr}$$

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)

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

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?

$$\frac{500}{25,000} (250) = 5 \text{ mL/hr}$$

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.

$$\frac{5}{100} (250) = 12.5 = 13 \text{ mL/hr}$$

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?

$$(Round to the nearest whole number) \quad 4 \times 50 \times 40 = \frac{18,000}{1,000} = 18 \text{ L}$$

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?

$$(Round to the nearest whole number) \quad \frac{150}{2.2} = 68 \times 75 \times 4 = 20,400 \text{ mL} \quad \frac{20,400}{1,000} = 20.4 \text{ L} = 20 \text{ L}$$