

# IM 7 Math Module

Complete the required math problems and submit to Math drop box

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

$$\frac{5 \text{ mg}}{20 \text{ mg}} \cdot 5 \text{ mL} = \boxed{1.25 \text{ mL}}$$

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

$$\frac{2 \text{ mg}}{10 \text{ mg}} \cdot 1 \text{ mL} = \boxed{0.2 \text{ mL}}$$

10. Infuse 500mg IV of a medication over 8 hrs. The drug is supplied as 500mg/100mL. The drip factor is 60. How many gtt/min will you infuse?

$$60 \text{ drops per mL} \cdot 100 \text{ mL} = 6,000 \text{ drops total}$$

$$\frac{6,000 \text{ drops total}}{480 \text{ minutes}} = 12.5 \text{ gtt/min}$$

12.5 gtt/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.

$$\frac{50 \text{ mg}}{500 \text{ mL}} = \frac{1 \text{ mg}}{10 \text{ mL}} = \frac{1,000 \text{ mcg}}{10 \text{ mL}}$$

$$\frac{1,000 \text{ mcg/mL} \times 142 \text{ mL/hr}}{79.5 \text{ kg} \times 60 \text{ min/hr}} = \frac{142,000}{4770} = 29.8 \text{ mcg/kg/min}$$

29.8 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.

$$\frac{250 \text{ mg}}{500 \text{ mL}} = \frac{0.5 \text{ mg}}{1 \text{ mL}} = \frac{500 \text{ mcg}}{1 \text{ mL}}$$

$$\frac{70 \text{ kg} \times 1 \text{ mcg/kg/min} \times 60 \text{ min/hr}}{500 \text{ mcg/mL}} = \frac{4200}{500} = 8.4 \text{ mL/hr}$$

8.4 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?

$$\frac{100 \text{ mg}}{250 \text{ mL}} = \frac{0.4 \text{ mg}}{1 \text{ mL}} = 400 \text{ mcg/mL}$$

$$\frac{400 \text{ mcg/mL} \times 12 \text{ mL/hr}}{60 \text{ min/hr}} = 80 \text{ mcg/min}$$

80 mcg/min

14. 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?

$$\frac{25,000 \text{ units}}{250 \text{ mL}} = \frac{100 \text{ units}}{1 \text{ mL}} \quad \frac{500 \text{ units/hr}}{100 \text{ units/mL}} = \boxed{5 \text{ mL/hr}}$$

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1. Infuse 1 gram of a medication over 45 minutes. The drug is supplied as 1gram/50ml.

The drip factor is 15. How many gtt/min will you infuse?

$$\begin{array}{l}
 15 \text{ drops per mL} \\
 \cdot 50 \text{ mL} = 750 \text{ drops total} \\
 \frac{750 \text{ drops}}{45 \text{ minutes}} = 16.6 \text{ gtt/min}
 \end{array}$$

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

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

3. 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?

$$\begin{array}{l}
 15 \text{ drops per mL} \\
 \cdot 250 \text{ mL} = 3750 \\
 \frac{3750 \text{ drops total}}{180 \text{ minutes}} = 20.83 \text{ gtt/min}
 \end{array}$$

4. 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?

$$\begin{array}{l}
 60 \text{ drops per mL} \\
 \cdot 50 \text{ mL} = 3,000 \\
 \frac{3,000 \text{ drops total}}{30 \text{ minutes}} = 100 \text{ gtt/min}
 \end{array}$$

5. The nurse is to give 500mg IV of a medication over 1 hr. The drug is supplied as

$$\begin{array}{l}
 1,000 \text{ mg} \\
 1 \text{ gram} / 250 \text{ mL} \\
 15 \text{ drops per mL} \\
 \cdot 125 \text{ mL} = 1,875 \\
 \frac{1,875 \text{ drops total}}{60 \text{ minutes}} = 31.25 \text{ gtt/min}
 \end{array}$$

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

$$\frac{75 \text{ mcg}}{100 \text{ mcg}} \cdot 2 \text{ mL} = 1.5 \text{ mL}$$

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

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

# IM 7 Math Module

800,000 mcg total

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15. 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.

$$\frac{800 \text{ mg}}{500 \text{ mL}} = 1.6 \frac{\text{mg}}{\text{mL}} = \frac{1600 \text{ mcg}}{1 \text{ mL}}$$

$$\frac{75 \text{ kg} \times 2 \text{ mcg/kg/min} \times 60 \text{ min/hr}}{1600 \text{ mcg/mL}} = 5.6 \text{ mL/hr}$$

16. The physician in the previous questions has now written an order to increase the medication to 4 mcg/kg/min. Using the information in the previous question, what rate would the nurse set on the IV pump? Round to the nearest tenth.

$$\frac{75 \text{ kg} \times 4 \text{ mcg/kg/min} \times 60 \text{ min/hr}}{1600 \text{ mcg/mL}} = 11.3 \text{ mL/hr}$$

17. 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.

$$\frac{100 \text{ units}}{250 \text{ mL}} = 0.4 \text{ units/mL}$$

$$\frac{5 \text{ units/hr}}{0.4 \text{ units/mL}} = 12.5 \text{ mL/hr}$$

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

$$\frac{400 \text{ mg}}{500 \text{ mL}} = 0.8 \frac{\text{mg}}{\text{mL}} = \frac{800 \text{ mcg}}{\text{mL}}$$

$$\frac{800 \text{ mcg/mL} \times 35 \text{ mL/hr}}{62 \text{ kg} \times 60 \text{ min/hr}} = \frac{28000}{3720} = 7.5 \frac{\text{mcg}}{\text{kg/min}}$$

19. The physician has ordered 1 gram IV of a medication over 30 minutes. Pharmacy has sent an IV bag labeled 1 gram in 50 mL D5W. The IV tubing delivers 15 gtt/mL. How many drops per minute (gtt/min) will the nurse deliver?

$$15 \text{ gtt/mL} \quad 50 \text{ mL total}$$

$$15 \cdot 50 = 750 \text{ drops total}$$

$$\frac{750 \text{ drops total}}{30 \text{ minutes}} = 25 \text{ gtt/min}$$

20. 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?

$$12 \text{ gtt/mL} \quad 100 \text{ mL total in bag}$$

$$12 \cdot 100 = 1,200 \text{ drops total}$$

$$\frac{1,200 \text{ drops total}}{60 \text{ minutes}} = 20 \text{ gtt/min}$$