

IM 7 Math Module

Complete the required math problems and submit to Math drop box

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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?

$$1g = 50 \text{ mL} \quad \frac{50 \text{ mL} \mid 15 \text{ gtt}}{\text{mL} \mid 45 \text{ mins}} = 16.7 \text{ gtt/min} = \boxed{17 \text{ gtt/min}}$$

2. The physician writes an order to give 1000mL of intravenous fluid over 8hrs. How

many mL/hr will you infuse? $\frac{1000 \text{ mL}}{8 \text{ hrs}} = \boxed{125 \text{ mL/hr}}$

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?

$$1.5g = 250 \text{ mL} \quad \frac{250 \text{ mL} \mid 15 \text{ gtt}}{3 \text{ hrs} = 180 \text{ min} \mid 180 \text{ min}} = 20.8 \text{ gtt/min} = \boxed{21 \text{ gtt/min}}$$

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?

$$1g = 50 \text{ mL} \quad \frac{50 \text{ mL} \mid 60 \text{ gtt}}{\text{mL} \mid 30 \text{ min}} = \boxed{100 \text{ gtt/min}}$$

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

1gram/250mL. The gtt factor is 15. How many gtt/min will you infuse?

$$\frac{500 \text{ mg} \mid 1g}{1000 \text{ mg}} = 0.5g = \frac{125 \text{ mL} \mid 15 \text{ gtt}}{\text{mL} \mid 60 \text{ mins}} = 31.3 \text{ gtt/min} = \boxed{31 \text{ gtt/min}}$$

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? $\frac{2 \text{ mL} \mid 75 \text{ mcg}}{100 \text{ mcg}} = \boxed{1.5 \text{ mL}}$

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

pump? $\frac{1000 \text{ mL}}{4 \text{ hrs}} = \boxed{250 \text{ mL/hr}}$

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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)

$$\frac{5 \text{ mL}}{20 \text{ mg}} \left| \frac{5 \text{ mg}}{1} \right. = \boxed{1.25 \text{ mL}}$$

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? $\frac{1 \text{ mL}}{10 \text{ mg}} \left| \frac{2 \text{ mg}}{1} \right. = \boxed{0.2 \text{ mL}}$

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?

$$\begin{array}{l} 500 \text{ mg} = 100 \text{ mL} \\ 8 \text{ hrs} = 480 \text{ min} \end{array} \quad \frac{100 \text{ mL}}{1 \text{ mL}} \left| \frac{60 \text{ gtt}}{1 \text{ mL}} \right| \frac{1}{480 \text{ mins}} = 12.5 \text{ gtt/min} = \boxed{13 \text{ gtt/min}}$$

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. $175 \text{ lbs} \div 2.2 \text{ lbs} = 79.5 \text{ kg}$

$$\frac{50 \text{ mg}}{500 \text{ mL}} = \frac{0.1 \text{ mg}}{1 \text{ mL}} = \frac{100 (\text{mcg/mL}) \times 142 (\text{mL/hr})}{79.5 (\text{kg}) \times 60 (\text{min/hr})} = 2.98 = \boxed{3 \text{ mcg/kg/min}}$$

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.

$$\frac{1 \text{ mcg}}{1 \text{ kg}} \left| \frac{70 \text{ kg}}{1} \right. = \frac{70 \text{ mcg}}{1 \text{ min}} \left| \frac{1 \text{ mg}}{1000 \text{ mcg}} \right. = \frac{0.07 \text{ mg}}{1 \text{ min}} \left| \frac{500 \text{ mL}}{250 \text{ mg}} \right| \frac{60 \text{ min}}{1 \text{ hr}} = \boxed{8 \text{ mL/hr}}$$

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?

$$\frac{100 \text{ mg}}{250 \text{ mL}} \left| \frac{12 \text{ mL}}{1 \text{ hr}} \right| \frac{1 \text{ hr}}{60 \text{ min}} \left| \frac{1000 \text{ mcg}}{1 \text{ mg}} \right. = \boxed{80 \text{ mcg/min}}$$

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?

$$\frac{500 \text{ units}}{1 \text{ hr}} \left| \frac{250 \text{ mL}}{25,000 \text{ units}} \right. = \boxed{5 \text{ mL/hr}}$$

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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.

$$\frac{165 \text{ lbs}}{2.2 \text{ lbs}} \left| \frac{1 \text{ kg}}{2.2 \text{ lbs}} \right. = 75 \text{ kg} \times 2 \text{ mcg} = \frac{150 \text{ mcg}}{1 \text{ min}} \left| \frac{1 \text{ mg}}{1000 \text{ mcg}} \right. = \frac{0.15 \text{ mg}}{1 \text{ min}} \left| \frac{500 \text{ mL}}{800 \text{ mg}} \right| \frac{60 \text{ min}}{1 \text{ hr}} = \boxed{5.6 \text{ mL/hr}}$$

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.

$$75 \text{ kg} \times 4 \text{ mcg} = \frac{300 \text{ mcg}}{1 \text{ min}} \left| \frac{1 \text{ mg}}{1000 \text{ mcg}} \right. = \frac{0.3 \text{ mg}}{1 \text{ min}} \left| \frac{500 \text{ mL}}{800 \text{ mg}} \right| \frac{60 \text{ min}}{1 \text{ hr}} = \boxed{11.3 \text{ mL/hr}}$$

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.

$$\frac{5 \text{ units}}{1 \text{ hr}} \left| \frac{250 \text{ mL}}{100 \text{ units}} \right. = 12.5 = \boxed{13 \text{ mL/hr}}$$

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.

$$\frac{400 \text{ mg}}{500 \text{ mL}} \left| \frac{1000 \text{ mcg}}{1 \text{ mg}} \right. = \frac{800 \text{ (mcg/mL)} \times 35 \text{ (mL/hr)}}{62 \text{ kg} \times 60 \text{ (min/hr)}} = \boxed{7.5 \text{ mcg/kg/min}}$$

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?

$$1 \text{ g} = 50 \text{ mL} \quad \frac{50 \text{ mL}}{1 \text{ mL}} \left| \frac{15 \text{ gtt}}{1 \text{ mL}} \right| \frac{1}{30 \text{ mins}} = \boxed{25 \text{ gtt/min}}$$

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?

$$400 \text{ mg} = 100 \text{ mL} \quad \frac{100 \text{ mL}}{1 \text{ mL}} \left| \frac{12 \text{ gtt}}{1 \text{ mL}} \right| \frac{1}{60 \text{ mins}} = \boxed{20 \text{ gtt/min}}$$