IM 7 Math Module

Complete the required math problems and submit to Math drop box

Name Moises ARTemus Corpus

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?

$\frac{1g}{45mins} \times \frac{50mL}{1g} = \frac{50mL}{45min}$

$\frac{15gtt}{mL} \times \frac{50mL}{45min} = 16.67 \approx \boxed{17\frac{gtt}{min}}$

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

$\frac{1000ml}{8hr} = \boxed{125mL/hr}$

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?

$\frac{1.5g}{3hr} \times \frac{1hr}{60min} \times \frac{250mL}{1.5g} \times \frac{15gtt}{mL} = 20.8\frac{gtt}{min} = \boxed{21\frac{gtt}{min}}$

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?

$\frac{1g}{30min} \times \frac{50mL}{1g} \times \frac{60gtt}{mL} = \boxed{\frac{100gtt}{min}}$

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?

$\frac{500mg}{1hr} \times \frac{1hr}{60min} \times \frac{1g}{1000mg} \times \frac{250mL}{1g} \times \frac{15gtt}{mL} = 31.25 \approx \boxed{\frac{31gtt}{min}}$

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?

$75mcg \times \frac{2mL}{100mcg} = \boxed{1.5mL}$

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

$\frac{1000}{4} = \boxed{250\frac{mL}{hr}}$

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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)

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

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?

$2\text{mg} \times \frac{\text{mL}}{10\text{mg}} = \boxed{.2\text{mL}}$

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?

$\frac{500\text{mg}}{8\text{hrs}} \times \frac{1\text{hr}}{60\text{min}} \times \frac{100\text{mL}}{500\text{mg}} \times \frac{60\text{gtt}}{\text{mL}} = \boxed{\frac{12.5\text{gtt}}{\text{min}}}$

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.

$\frac{142\text{mL}}{\text{hr}} \times \frac{1\text{hr}}{60\text{min}} \times \frac{50\text{mg}}{500\text{mL}} \times \frac{1000\text{mcg}}{1\text{mg}} = \frac{236.7\frac{\text{mcg}}{\text{min}}}{79.54\text{kg}} = 2.97 \approx \boxed{3.0\text{ mcg/min/kg}}$

$175\text{lb} \times \frac{1\text{kg}}{2.2\text{lb}} = 79.54\text{kg}$

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.

$70\text{kg} \times \frac{500\text{mL}}{250\text{mg}} \times \frac{1\text{mg}}{1000\text{mcg}} \times 1\text{mcg/kg/min} \times \frac{60\text{min}}{1\text{hr}} = \boxed{8.4\frac{\text{mL}}{\text{hr}}}$

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?

$\frac{12\text{mL}}{\text{hr}} \times \frac{100\text{mg}}{250\text{mL}} \times \frac{1000\text{mcg}}{1\text{mg}} \times \frac{1\text{hr}}{60\text{min}} = \boxed{\frac{80\text{ mcg}}{\text{min}}}$

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?

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

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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.

$165 lbs \times \frac{1 kg}{2.2 lbs} \times \frac{2 mcg}{kg\ min} \times \frac{500 mL}{800 mg} \times \frac{60 min}{1 hr} \times \frac{1 mg}{1000 mcg} = 5.6 mL/hr$

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.

$165 lbs \times \frac{1 kg}{2.2 lbs} \times \frac{4 mcg}{kg\ min} \times \frac{500 mL}{800 mg} \times \frac{60 min}{1 hr} \times \frac{1 mg}{1000 mcg} = 11.25 \approx 11.3 \frac{mL}{hr}$

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.

$\frac{5 units}{hr} \times \frac{250 mL}{100 units} = 12.5 \frac{mL}{hr}$

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.

$\frac{35 mL}{hr} \times \frac{400 mg}{500 mL} \times \frac{1 hr}{60 min} \times \frac{1000 mcg}{1 mg} = \frac{466.667 mcg/min}{62 kg} = 7.5 mcg/kg/min$

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?

$\frac{1 g}{30 min} \times \frac{50 mL}{1 g} \times \frac{15 gtt}{mL} = \frac{25 gtt}{min}$

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?

$\frac{400 mg}{1 hr} \times \frac{1 hr}{60 min} \times \frac{100 mL}{400 mg} \times \frac{12 gtt}{mL} = \frac{20 gtt}{min}$