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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) $\frac{\text{volume} \times \text{gtt}}{\text{mins}}$ $\frac{250\text{mL} \times 15\text{gtt}}{180\text{ mins}} = 21\text{gtt/min}$

   3hrs = 180 mins
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?

   $\frac{50\text{mL} \times 60}{30\text{ mins}} = 100\text{gtt/min}$
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)

   $\frac{250\text{mL} \times 15}{60\text{min}} = 63\text{gtt/min}$
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?

   $\frac{100\text{mL} \times 12}{60\text{min}} = 20\text{gtt/min}$

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?

   $\frac{1000}{8} = 125\text{mL/hr}$
6. Infuse 1000 mLs of intravenous fluid over 4 hrs. How many mL/hr will you set on the pump?

   $\frac{1000}{4} = 250\text{mL/hr}$
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)

   $\frac{250}{1.5\text{hrs}} = 3\text{mL/hr}$

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

   $\frac{5\text{mg} \mid 5\text{mL}}{20\text{mg}} = 1.25\text{mL}$
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?

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

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4,772.4

Mcg/kg/min or Mcg/min

50/500 = 0.1 x 1000 = 100mcg

175/2.2 = 79.54 kg

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) $\frac{100 \mid 142}{79.54 \times 60} = 3\text{mcg/kg/min}$

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) $\frac{70 \times 1\text{mcg} \times 60}{500\text{mcg}} = 8$

250/500 = 0.5 - 500mcg

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?

100mg x 1000 = 100,000mcg

100/250 = 400mcg x 12 ÷ 60 = 80

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

165lb = 75kg 800/500 = 1.6 - 1,600mcg/mL

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) $\frac{4\text{mcg/min} \times 60}{64\text{mcg/mL}} = 3.8\text{mL/hr}$

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) $\frac{50\text{mcg/mL} \times 15\text{mL/hr}}{65 \times 60\text{min/hr}} \quad \frac{750}{3900} = 0.19\text{mcg/min}$

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? $\frac{500 \mid 250\text{mL}}{25000} = 5\text{mL/hr}$

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. $\frac{5\text{units} \mid 250\text{mL}}{100\text{units}} = 13\text{mL/hr}$

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) $50 \times 90.9 \times 4 = \frac{18,180}{1000} = 18\text{L}$

90.9kg

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) $75 \times 68 \times 4 = \frac{20,400}{1000} = 20\text{L}$

150lb = 68kg

4mL x TBSA x weight