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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)
$$\frac{250 \times 15}{180} = 20.83 = 21\ gtt/min$$

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?
$$\frac{50 \times 60}{30} = 100\ gtt/min$$

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)
$1g = \frac{1000\ mg \times 15}{60} = 250\ gtt/min$

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

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

6. Infuse 1000 mLs of intravenous fluid over 4 hrs. How many mL/hr will you set on the pump?
$$\frac{1000}{4} = 250\ mL/hr$$

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)   167

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

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)
$\frac{5}{20} \times 5 = 1.25\ mL$

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?
$\frac{2}{10} \times 1 = 0.2\ mL$

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Mcg/kg/min or Mcg/min

con $\frac{50}{500}$ =

0.1mg = 100mcg

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) $\frac{100 \times 142}{79.5 \times 60} = \frac{14200}{4770} = 2.976 \approx$

3mcu/kg/min

con- 0.5mg
= 500mcg

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) $\frac{70 \times 1 \times 60}{500} = \frac{4200}{500} = 8.4 \approx 8$

8 ml/hr

con- 0.4
= 400mcg

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? $\frac{400 \times 12}{60} = \frac{4800}{60} = 80$

80 mcg/min

con- 1.6mg
1600mcg

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) $\frac{75 \times 2 \times 60}{1600} = \frac{9000}{1600} = 5.4625$

5.6ml/hr

con- 64mcg

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) $\frac{4 \times 60}{64} = \frac{240}{64} = 3.75 \approx 3.8$ml/hr

con- 50mcg

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)

$\frac{50 \times 15}{65 \times 60} = \frac{750}{3900} = 0.19$ 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?

$\frac{500}{25,000} \times 250 = 5$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.

$\frac{5}{100} \times 250 = 12.5 \approx 13$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) $4 \times 50 \times 90.9 = 18,180$ $\frac{18,180}{1000} = 18.18$

$\approx 18L$

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) $\frac{4 \times 75 \times 68.16 = 20,454}{1000}$ $\frac{20,454}{1000} = 20.45$

$\approx 20L$