

## 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?

$$17 \text{ gtt/min}$$

$$\frac{50 \text{ ml}}{45 \text{ min}} \times 15 = 16.66 \dots$$

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

$$125 \text{ mL/hr}$$

$$\frac{1000 \text{ mL}}{8 \text{ hr}}$$

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?

$$21 \text{ gtt/min}$$

$$\frac{250 \text{ mL}}{180 \text{ min}} \times 15 = 20.83$$

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?

$$100 \text{ gtt/min}$$

$$\frac{50 \text{ mL}}{30 \text{ min}} \times 60 = 100$$

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?

$$63 \text{ gtt/min}$$

$$\frac{250 \text{ mL}}{60 \text{ min}} \times 15 = 62.5$$

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?

$$1.5 \text{ mL}$$

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

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

$$250 \text{ mL/hr}$$

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

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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)

$$1.25 \text{ mL}$$

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

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?

$$0.2 \text{ mL}$$

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

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?

$$13 \text{ gtt/min}$$

$$\frac{100 \text{ mL}}{480 \text{ min.}} \times 60 = 12.5$$

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.

$$3 \text{ mcg/kg/min}$$

$$175 \text{ lbs} \Rightarrow 79.5 \text{ kg}$$

$$50 \text{ mg} / 500 \text{ mL} \Rightarrow 0.1 \text{ mg/mL} \Rightarrow 100 \text{ mcg/mL}$$

$$\frac{100 \text{ mcg/mL} \times 142 \text{ mL/hr}}{79.5 \text{ kg} \times 60 \text{ min/hr}} \Rightarrow \frac{14,200}{4,770} \Rightarrow 2.97$$

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.

$$8 \text{ mL/hr}$$

$$250 \text{ mg} / 500 \text{ mL} \Rightarrow 0.5 \text{ mg/mL} \Rightarrow 500 \text{ mcg/mL}$$

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

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?

$$80 \text{ mcg/min}$$

$$100 \text{ mg} / 250 \text{ mL} \Rightarrow 0.4 \text{ mg/mL} \Rightarrow 400 \text{ mcg/mL}$$

$$\frac{400 \text{ mcg/mL} \times 12 \text{ mL/hr}}{60 \text{ min/hr}} \Rightarrow \frac{4,800}{60} \Rightarrow 80$$

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?

$$5 \text{ mL/hr}$$

$$100 \text{ units/mL}$$

$$\frac{500 \text{ units}}{25,000 \text{ units}} \times 250 \text{ mL} \Rightarrow 5$$

## IM 7 Math Module

$$165 \text{ lb} \Rightarrow 75 \text{ kg}$$

$$800 \text{ mg} / 500 \text{ mL} \Rightarrow 1.6 \text{ mg/mL}$$

$$\Rightarrow 1,600 \text{ mcg/mL}$$

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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.

$$5.6 \text{ mL/hr}$$

$$\frac{75 \text{ kg} \times 2 \text{ mcg/kg/min} \times 60 \text{ min/hr}}{1,600 \text{ mcg/mL}} \Rightarrow \frac{9,000}{1,600} \Rightarrow 5.625$$

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.

$$11.3 \text{ mL/hr}$$

$$\frac{75 \text{ kg} \times 4 \text{ mcg/kg/min} \times 60 \text{ min/hr}}{1,600 \text{ mcg/mL}} \Rightarrow \frac{18,000}{1,600} \Rightarrow 11.25$$

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.

$$13 \text{ units/hr}$$

$$100 \text{ units} / 250 \text{ mL} \Rightarrow 0.4 \text{ units/mL}$$

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

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.

$$7.5 \text{ mcg/kg/min}$$

$$400 \text{ mg} / 500 \text{ mL} \Rightarrow 0.8 \text{ mg/mL} \Rightarrow 800 \text{ mcg/mL}$$

$$\frac{800 \text{ mcg/mL} \times 35 \text{ mL/hr}}{62 \text{ kg} \times 60 \text{ min/hr}} \Rightarrow \frac{28,000}{3,720} \Rightarrow 7.526$$

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?

$$25 \text{ gtt/min}$$

$$\frac{50 \text{ mL}}{30 \text{ min}} \times 15 = 25$$

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?

$$20 \text{ gtt/min}$$

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