

## 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?

$$\frac{50\text{mL} \times 15}{45\text{min}} = 17\text{gtt/min}$$

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

$$1000\text{mL} \div 8\text{hrs} = 125\text{mL/hr}$$

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?

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

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?

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

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?

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

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?

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

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

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

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)

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

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?

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

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?

$$\frac{100\text{mL} \times 60}{200\text{min}} = 30\text{gtt/min}$$

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.

$$175\text{lbs} \times 2.2 = 385\text{kg}$$

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

$$\begin{aligned} &50000\text{mcg} \\ &\text{in } 500\text{mL} \\ &= 100 \times 142 \\ &= \frac{14200}{4770} \end{aligned}$$

$$= 70 \text{ mcg/min}$$

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.

$$\frac{250}{500}$$

$$= 0.5 \text{ mg/mL}$$

$$\times 1000$$

$$= 500 \text{ mcg/mL}$$

$$\frac{70 \text{ kg} \times 1 \text{ mcg/kg/min}}{500 \text{ mcg}} \times \text{mL} = 0.14 \text{ mL/min} = 8 \text{ mL/hr}$$

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?

$$0.4 \text{ mg/mL} \times 12 \text{ mL/hr} = 4.8 \text{ mg/hr} = \frac{4800 \text{ mcg/hr}}{60} = 80 \text{ mcg/min}$$

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?

$$\frac{25000}{250} = 100 \text{ u/mL}$$

$$\frac{500 \text{ u}}{100 \text{ u}} \times \text{mL} = 5 \text{ mL/hr}$$

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.

$$\frac{800 \text{ mg}}{500 \text{ mL}} = 1.6 \text{ mg/mL} = 1600 \text{ mcg/mL}$$

$$\frac{2(75)}{1600 \text{ mcg/mL}} = \frac{150 \text{ mcg/min}}{1600 \text{ mcg/mL}} = 0.093 \text{ mL/min} = 5.6 \text{ mL/hr}$$

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.

$$\frac{800 \text{ mg}}{500 \text{ mL}} = 1.6 \text{ mg/mL} = 1600 \text{ mcg/mL}$$

$$\frac{300 \text{ mcg/min}}{1600 \text{ mcg/mL}} = 0.1875 \text{ mL/min} = 11.3 \text{ mL/hr}$$

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.

$$\frac{100 \text{ units}}{250 \text{ mL}} = 0.4 \text{ u/mL}$$

$$\frac{5 \text{ u/hr}}{0.4 \text{ u/mL}} = 12.5 \text{ mL/hr}$$

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.

$$\frac{400}{500} = 0.8 \text{ mg/mL}$$

$$0.8 \text{ mg/mL} \times 35 = 28 \text{ mg/hr} = \frac{28000 \text{ mcg/hr}}{60} = 466.7 \text{ mcg/hr}$$

$$\frac{466.7 \text{ mcg/hr}}{62 \text{ kg}} = 7.5 \text{ mcg/kg/min}$$

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?

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

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?

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