

IM 7 Math Module

Complete the required math problems and submit to Math drop box

Name Johanna Oliver

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?

$$\frac{\text{mL (gtt)}}{\text{min}}$$

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

2. The physician writes an order to give 1000mL of intravenous fluid over 8hrs. How

many mL/hr will you infuse? $\frac{1,000\text{mL}}{8\text{hrs}} = \frac{x}{1\text{hr}}$ 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?

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

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?

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

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?

$$\frac{1,000\text{mg}}{250\text{mL}} = \frac{500\text{mg}}{125\text{mL}} \quad \frac{125\text{mL} \times 15\text{gtt}}{60} = 31\text{gtt/min}$$

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?

1.5 mL

$$\frac{100\text{mcg}}{2\text{mL}} = \frac{50\text{mcg}}{1\text{mL}} = \frac{75\text{mcg}}{\text{mL}} \quad \frac{1\text{mL}}{50\text{mcg}} = \frac{1.5\text{mL}}{75\text{mcg}}$$

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

pump? $\frac{1,000\text{mL}}{4\text{hrs}} = \frac{250\text{mL}}{1\text{hr}}$ 250 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)

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

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? $\frac{1 \text{ mL}}{10 \text{ mg}} = \frac{x}{2 \text{ mg}}$ $\boxed{0.2 \text{ mL}}$

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?

$$\frac{100 \text{ mL} \times 60}{480} \quad \boxed{13 \text{ gtt/min}}$$

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.

$14,200 \text{ mcg} / 79.55 \text{ kg} / 60 \text{ min}$ $\frac{50,000 \text{ mcg}}{500 \text{ mL}} = \frac{14,200 \text{ mcg}}{142 \text{ mL}}$ $\boxed{3 \text{ mcg/kg/min}}$

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.

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

$$\frac{250,000 \text{ mcg}}{500 \text{ mL}} = \frac{500 \text{ mcg}}{1 \text{ mL}} = \frac{70 \text{ mcg/min}}{500 \text{ mcg/mL}} \frac{0.14 \text{ mL}}{1 \text{ min}} = \frac{8.4}{60 \text{ min}}$$

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?

$$\frac{100,000 \text{ mcg}}{250 \text{ mL}} = \frac{4800 \text{ mcg}}{12 \text{ mL}} \quad \boxed{80 \text{ mcg/min}}$$

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?

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

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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.

$$\frac{800,000 \text{ mcg}}{500 \text{ mL}} = \frac{1,600 \text{ mcg}}{1 \text{ mL}} \quad \frac{150 \text{ mcg/min}}{1,600 \text{ mcg/mL}} = \boxed{5.6 \text{ mL/hr}}$$

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.

$$\frac{300 \text{ mcg/min}}{1,600 \text{ mcg/mL}} = \boxed{11.3 \text{ mL/hr}}$$

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.

$$\frac{100 \text{ u}}{250 \text{ mL}} = \frac{0.4 \text{ u}}{1 \text{ mL}} \quad \frac{5 \text{ u/hr}}{0.4 \text{ u/mL}} = \boxed{13 \text{ mL/hr}}$$

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.

$$\frac{400,000 \text{ mcg}}{500 \text{ mL}} = \frac{28,000 \text{ mcg}}{35 \text{ mL}} \quad \frac{28,000 \text{ mcg} / 62 \text{ kg} / 60 \text{ min}}{1} = \boxed{7.5 \text{ mcg/kg/min}}$$

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?

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

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?

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