1. Order: Neupogen (filgrastim) 5 mcg/kg of body weight subq qd. Patient’s weight is 200 lbs. The drug is available as 1 mg per mL. **How many mL (to the 100ths place) will you give?**

2. Intropin (dopamine) is supplied as 400mg in 250 mL of NS. The patient is to receive 8mcg/kg/min of dopamine. The patient weighs 150 lbs. **Using an IV pump, how many mL/hr should be delivered?** (Whole number)

3. The patient’s weight is 150 pounds. The doctor has ordered Tagamet (cimetidine) 2 mg/kg/hr IV. Available is 1000 mg in 1000mL D5W. Administration set is a microdrip device. **How fast should you set the IV in gtts/min? (Remember that gtts have to be rounded to the nearest whole number to be correct.)**

4. Order: Aminophylline (theophylline) 0.5 mg/kg/hr IV. The drug is supplied as 500mg in 500mL D5W. Administration set is a microdrop set. The patient’s weight is 70 kg.
How many mL per hour should the patient receive?

How many drops per minute?

5. Your patient weighs 100 kg and has been ordered Bretylol 5mg/kg of body weight. The drug is mixed 500mg in 50 mL and you are to infuse the dose over 30 minutes. Using a microdrip device, how many gtts/min will you deliver?

6. A patient has an IV of 500 milliliters of D5W. The flow rate is 15 drops per minute. If the drop factor is 60 gtts/mL, how many hours will it take for this infusion to finish? (Round to the nearest tenth.)

7. Order: Versed (midazolm hydrochloride) 4 mg IM on call. Child’s weight: 30kg. The manufacturer recommends 0.08 – 0.2 mg/kg dose q 8 h.
   a. What is the minimum and maximum dose for this child? (Round to one decimal place if necessary.)
   
   b. Is the dose within the recommended dose range?

8. Order Bactopen (cloxacillin sodium) 100 mg po qid. Available: bactopen 125 mg/5mL oral solution. Recommended dose: 50 – 100 mg/kg/day in equally divided doses every 6 hours. The child weigh 19 lbs.
a. What is the minimum and maximum safe dose range for this patient? 
   (Round to one decimal place if necessary.)

b. Does the dose fall within the safe dose range? NO

9. Order: Nipride (nitroprusside sodium) 0.5 mcg/kg/min. Patient’s weight: 125 lbs. The drug is available as 100 mcg/mL. How many mL per hour should the patient receive? (Whole number)

10. Order: Dobutrex (dobutamine) at 6 mcg/kg/min. Available: Dobutrex 250 mg in 250 mL D5W. Administration set: microdrip. Patient’s weight: 50 kg. How many gtts/ min should the patient receive?

11. An infant weighed 8 lbs 8 oz. The physician ordered Tagamet (cimetidine) 25 mg p.o. QID. The safe daily dose range is 10-20 mg/kg/day. Available: Tagamet Syrup 150mg/5mL.
   a. What is the minimum and maximum safe dose for this patient in mg/day? (Round to the nearest whole number)

   b. How many mg/kg/day have been ordered for this patient? (Round to the nearest whole number.)

   c. Is the dose safe?
Answers

1. \[ \frac{0.45 \text{ mL}}{\text{dose}} = \frac{1 \text{ mL}}{1.0 \text{ mg}} \times \frac{1 \text{ mg}}{1000 \text{ mcg}} \times \frac{5 \text{ mcg}}{\text{kg / dose}} \times \frac{1 \text{ kg}}{2.2 \text{ lbs}} \times \frac{200 \text{ lbs}}{1} \]

2. \[ \frac{20 \text{ mL}}{\text{hr}} = \frac{250 \text{ mL}}{400 \text{ mg}} \times \frac{1 \text{ mg}}{1000 \text{ mcg}} \times \frac{8 \text{ mcg}}{\text{kg / min}} \times \frac{1 \text{ kg}}{2.2 \text{ lbs}} \times \frac{150 \text{ lbs}}{1} \times \frac{60 \text{ min}}{1 \text{ hr}} \]

3. \[ \frac{136 \text{ gtt / min}}{\text{mL}} = \frac{60 \text{ gtt / min}}{100 \text{ mL}} \times \frac{1000 \text{ mL}}{2 \text{ mg}} \times \frac{2 \text{ mg}}{\text{kg / hr}} \times \frac{1 \text{ kg}}{2.2 \text{ lbs}} \times \frac{150 \text{ lbs}}{1} \times \frac{1 \text{ hr}}{60 \text{ min}} \]

4. a. \[ \frac{35 \text{ mL}}{\text{hr}} = \frac{500 \text{ mL}}{500 \text{ mg}} \times \frac{0.5 \text{ mg}}{1} \times \frac{70 \text{ kg}}{1} \]

b. \[ \frac{35 \text{ gtt / min}}{\text{mL}} = \frac{60 \text{ gtt / min}}{500 \text{ mL}} \times \frac{500 \text{ mL}}{3 \text{ mg}} \times \frac{0.5 \text{ mg}}{1 \text{ kg}} \times \frac{70 \text{ kg}}{1} \times \frac{1 \text{ hr}}{60 \text{ min}} \]

5. \[ \frac{100 \text{ gtt / min}}{\text{mL}} = \frac{60 \text{ gtt / min}}{500 \text{ mL}} \times \frac{50 \text{ mL}}{2 \text{ mg}} \times \frac{5 \text{ mg}}{1 \text{ kg}} \times \frac{100 \text{ kg}}{1} \times \frac{1 \text{ hr}}{30 \text{ min}} \]

6. \[ \frac{33.3 \text{ hr}}{60 \text{ min}} = \frac{1 \text{ hr}}{15 \text{ gtt / min}} \times \frac{50 \text{ mL}}{1 \text{ mL}} \times \frac{0.08 \text{ mg}}{1 \text{ kg / dose}} \times \frac{30 \text{ kg}}{1} \]

7a. \[ \frac{2.4 \text{ mg}}{\text{dose}} = \frac{0.08 \text{ mg}}{1 \text{ kg / dose}} \times \frac{30 \text{ kg}}{1} \]

7b. Yes

8. a. \[ \frac{108 \text{ mg}}{\text{dose}} = \frac{50 \text{ mg}}{2.2 \text{ lbs}} \times \frac{1 \text{ kg}}{1} \times \frac{19 \text{ lbs}}{4 \text{ doses}} \]

b. No

9. \[ \frac{17 \text{ mL}}{\text{hr}} = \frac{1 \text{ mL}}{100 \text{ mcg}} \times \frac{0.5 \text{ mcg}}{1 \text{ kg / min}} \times \frac{1 \text{ kg}}{2.2 \text{ lbs}} \times \frac{125 \text{ lbs}}{1} \times \frac{60 \text{ min}}{1 \text{ hr}} \]

10. \[ \frac{18 \text{ gtt / min}}{\text{mL}} = \frac{60 \text{ gtt / min}}{250 \text{ mL}} \times \frac{1 \text{ mg}}{1000 \text{ mcg}} \times \frac{6 \text{ mcg}}{1 \text{ kg / min}} \times \frac{50 \text{ kg}}{1} \]
11. a. \[ \frac{39 \text{mg}}{\text{day}} = \frac{10 \text{mg}}{\text{kg} / \text{day}} \times \frac{1 \text{kg}}{2.2 \text{lb}} \times \frac{8.5 \text{lb}}{1} \] to

\[ \frac{77 \text{mg}}{\text{day}} = \frac{20 \text{mg}}{\text{kg} / \text{day}} \times \frac{1 \text{kg}}{2.2 \text{lb}} \times \frac{8.5 \text{lb}}{1} \]

b. \[ \frac{26 \text{mg}}{\text{kg} \cdot \text{day}} = \frac{25 \text{mg}}{\text{dose} \cdot \text{day}} \times \frac{4 \text{dose}}{\text{day}} \times \frac{2.2 \text{lbs}}{\text{kg}} \times \frac{1}{8.5 \text{lbs}} \]

c. No