Drug Dose Calculation

Solved Examples

(Refer and practice)

Module 1

Metric Conversion

1)   8 g = ? mg

    Sol. 8g X $\dfrac{1000mg}{1g}$

      Ans = **8000 mg**

2) 8 g = ? mcg

    Sol. 8g X $\dfrac{1000mg}{1g}$ X $\dfrac{1000mcg}{1mg}$

      Ans = 80,00,000 mcg

3)   2oz = ? ml

  Sol: 2oz X $\dfrac{2tbsp}{1oz}$ X $\dfrac{15ml}{1\ tbsp}$

      Ans = **30 ml**

Module 2

Standard Method

O - ordered dose; A - available dose; V - volume

4) The physician has ordered 1,500mg of calcium carbonate tablet PO. Available form is 250mg/tab. How many tablets has to be given ?

   Sol:
   $\frac{O}{A}$ x V
   $= \frac{1500 \text{ mg}}{250 \text{mg}}$ x 1   **Ans = 6 tablets**

5) The physician has ordered 500mg of drug. Available form is 0.25 g/tab. How will you administer?

   Sol:

   500mg x $\frac{1g}{1000mg}$ = 0.5mg   = $\frac{O}{A}$ x V = $\frac{0.5 \text{ g}}{0.25g}$ x 1 **Ans = 2 tablets**

6) The physician orders Injection Amikacin 5mg/Ib IM q 12 hour. Available form is 0.9g/2ml. How many ml has to be administered to a patient who weights 72.7 kg ?

   Sol: 72.7 kg x $\frac{2.2 \text{ Ibs}}{1kg}$ = 159.94 Ibs   =159.94 x 5 = 799.7 mg

   = 799.7 mg x $\frac{1g}{1000mg}$ = 0.7997 g   = $\frac{O}{A}$ x V = $\frac{0.7997g}{0.9g}$ x 2 = 1.777....

   Ans = 1.8 ml

Module 3

Intravenous drip calculation (drops/min)

7) The physician has ordered 1L of RL over 8 hours. The drop factor is 15 drops/ml. What will be the flow rate ?

   Sol: Total vol. in ml x drop factor   = $\frac{1000ml \times 15}{8 \times 60}$ = 31.25 **Ans = 31 drops/min**
   Time in min

8) The physician has ordered 300ml of Ringer lactate (RL) over 6 hours. What will be the hourly rate ?

   Sol: $\frac{Total\ vol.\ in\ ml}{Number\ of\ hours}$ = $\frac{300\ ml}{6\ hours}$ **Ans = 50 ml/hr**

9) The physician has ordered 2L of NS 1/2 over 48 hours. What will be the hourly rate ?

   Sol: $\frac{Total\ vol.\ in\ ml}{Number\ of\ hours}$ = $\frac{2000ml}{48\ hours}$ = 41.66…. **Ans = 42 ml/hr**

10) The physician has ordered 1L of RL to infuse at 200ml/hr. Started at 8am when will the infusion complete?

   Sol: 1000ml x $\frac{1}{200ml}$ = 5 hours = started at 8 am + 5 hours   **Ans = 13:00**

Module 4

Unit based calculation

11) The consultant has ordered continuous heparin sodium by IV at 1000 units per hour. IV D5W 500ml with 20,000 units of heparin. How many ml/hr?

Sol: $\underline{20,000 \text{ units}}$ = 40 units/ ml = $\underline{1000 \text{ ml}}$ **Ans** = **25 ml/hr**
        500ml   40 units

Module 5

Weight based calculation

12) The physician prescribed Dopamine drip at 10mcg/kg/min. The patients weight is 55kg. Dilution is 800mg /500ml. What will be the infusion rate?

Sol: $\underline{O}$ x V
     A   = $\underline{10 \text{ mcg x } 55 \text{ kg x } 60}$ x 500ml
                     800 mg
$\underline{10 \text{ mcg x } 55 \text{ kg x } 60}$ x 500ml = 20.62   **Ans** = **21 ml/hr**
     8,00,000 mcg

Module 6

Ratio

13) How many ml of a 1:1000 solution of adrenaline is required to administer 0.5mg of adrenaline to a client with anaphylactic shock?

Sol: 1 gm in 1000 ml
   1 mg in 1000 ml   0.5 x 1000
                              1000

Therefore, 0.5 mg in 0.5 ml Ans = 0.5 ml

Percentage

14) The physician has ordered to administer 180mg of 2% drug. How much is to be given in ml?

Sol: 1% is 1 gram in 100 ml solution
   180 mg x 100 ml = 180 mg x 100 ml   **Ans = 9 ml**
   2 gram   2000mg