

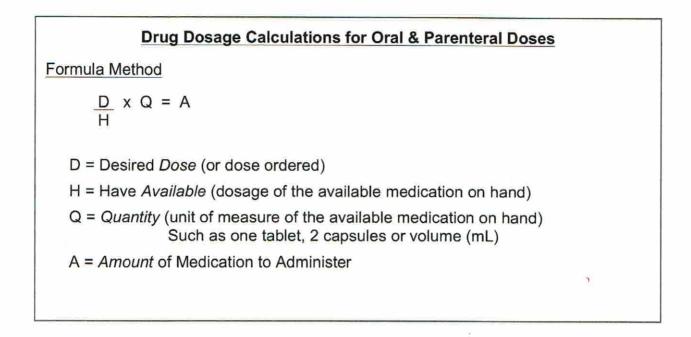
## Math Ability Exam Helpful Hints

- 1. PRINT OUT the calculation formulas provided by Prophecy and use these formulas to answer the questions
  - a. Have scratch paper, a pencil and a calculator ready write out the formula using the appropriate numbers in the problem and then do your calculations
  - b. <u>Don't</u> round the answer you get when converting lbs to kg us the full result that is on your calculator in your calculations
- 2. Know how to do metric conversions!!!
  - a. 1 mg = 1000 mcg
  - b. 1 kg = 1000 G
  - c. 1 G = 1000 mg
  - d. 1 kg = 2.2lbs
- 3. Make sure to answer with the appropriate number of decimals as specified in the problem, rounding correctly.
- 4. Make sure the answer makes sense!! If unsure, plug your answer back into the calculation to make sure it's the correct answer.
- 5. Use critical thinking to reason through how to determine the answer if you are struggling with a question
- 6. Keep in mind that sometimes there is more information in the problem than you need to answer the question
- 7. If you are struggling with figuring out an answer, try a different way mathematically do approach the problem
- 8. Want to practice before taking the test? Check out these sites (there are lots of practice to be found on the internet)
  - a. <u>https://www.youtube.com/watch?v=hnzZKY8SGbE</u>
  - b. <u>https://www.registerednursern.com/dosage-calculations-nursing-comprehensive-quiz/</u>
  - c. https://www.leveluprn.com/blogs/dosage-calculation



## **BASIC CALCULATION FORMULAS**

\*\*NOTE – The following formulas are some methods used to accurately and safely perform math calculations in the healthcare setting. There are other formulas and methods available and acceptable for accurately calculating dosages.



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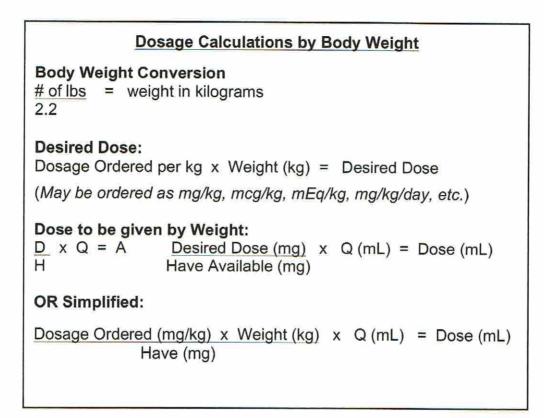


Calculating IV Flow Rates
Calculating Flow Rate mL/hr
<u>Total volume ordered (mL)</u> = Flow Rate (mL/hr) Total hours ordered (hr)
Calculating Flow Rate in Drop Factor gtt/min
<u>Volume (mL) x Drop factor (gtt/mL)</u> = Drip Rate (gtt/min) Time (hr) x 60 minutes
Calculating Infusion Rate mL/hr
<u>D (Unit/hr ordered)</u> x V (mL on hand) = Infusion Rate (mL/hr) H (Units on hand)
Drug Concentration
Amount of drug in solution (g, mg, mcg, etc.) = Drug Concentration Amount of solution (mL)
Amount pt is receiving per hour
Drug Concentration X Infusion Rate = mg/hr

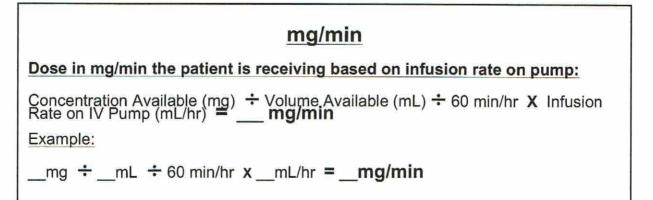
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## ADVANCED CALCULATION FORMULAS



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## mcg/kg/min

Dose in mcg/kg/min the patient is receiving based on infusion rate on pump:

Concentration Available (mg) X 1000 (to convert to mcg) ÷ Volume Available (mL) ÷ 60 min/hr ÷ Weight (kg) X Infusion Rate on IV Pump (mL/hr) = \_\_\_ mcg/kg/min Example:

 $\_mg \times 1000 mcg \div \_mL \div 60 min/hr \div \_kg \times \_mL/hr = <math>\_mcg/kg/min$ 

Rate to infuse on IV pump based on ordered dosage (mcg/kg/min):

\_\_mcg/kg/min\_X\_\_\_mL in bag\_X\_60 min/hr\_X\_\_\_wt in kg

\_\_\_ mg in bag X 1000

mcg/min
Dose in mcg/min the patient is receiving based on infusion rate on pump:
Concentration Available (mg) X 1000 (to convert to mcg) ÷ Volume Available (mL) ÷ 60 min/hr X Infusion Rate on IV Pump (mL/hr) ■mcg/min
Example:
mg
Rate to infuse on IV pump based on ordered dosage (mcg/min):
mcg/min_XmL in bag_X_60 min/hr mg in bag X 1000 =mL/hr to infuse

= \_\_\_\_mL/hr to infuse

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