**Drug Calculation Help**

---

Metric System

Mass - quantity of a substance

Length - distance from point a to point b

Volume - space occupied by a substance

Basic units of the metric system

gram = mass
meter = length
liter = volume

kilo = 1000 (k)
fundamental unit = 1(gram, liter, or meter)
deci = 1/10 or 0.1 (d)
centi = 1/100 or 0.01 (c)
milli = 1/1000 or 0.001 (m)
micro = 1/1,000,000 or 0.00001

Helpful conversions

1 grain = 60 mg
33.8 oz = 1 liter
1 fl oz ~ 30 ml
1 Tbsp = 15 ml
2 Tbsp = 1 fl oz

digit places in decimals

0.0 = tenths
0.00 = hundredths
0.000 = thousandths
0.00000 = millionths

When multiplying a decimal by 10 move the decimal point one digit to the right.

10 ml x 10 = 100 ml

When dividing a decimal by 10 move the decimal point one digit to the left.

1 liter/ 10 = 0.1 liter

Drug dose calculations:

You are trying to solve for a volume, ml or cc or oz or # of tablets or whatever.

Step 1 Find minimum concentration.

Example If there are 100 mg of drug in 10 ml of fluid there will be 10 mg in each ml of fluid. (Hint - mg divided by ml)

Step 2 Place the minimum concentration in the following equation.

Dose divided by concentration or dose/concentration

Step 3 Multiple the result by the drip rate of your IV set if it is a drip calculation.

If the medication is to be taken orally or injected directly you do not need to do step 3.

Example: Valium comes 10 mg in 2 ml of fluid. The doctor orders 7.5 mg to be given. How much volume will the patient receive?

Step 1 10 mg / 2 ml = 5 mg\ ml

Step 2 7.5mg/5.0 mg\ml = 7.5/5.0 = 1.5 ml