What are the things you need to Review and Practice and Formulas?

Grams to mg (g → mg)
milligrams to mcg (micrograms)
kilograms to lbs (pounds) & to grams
lbs (pounds) to oz & to grams

Liters to ml & to oz & to pints
Cups to <u>fluid ounces</u> (oz)
Pints (pts) to cups to <u>fluid oz</u>
Quart(s) to Pint (pt)
Teaspoon (tsp) to tablespoon (tbsp) to **oz**

Celsius (°C) to Fahrenheit (°F)

IV TUBING – Macro/Micro - gtts/ml
Macrodrop IV flow rate (**10, 15, or 20**)
Microdrop IV flow rate (**60** gtts/ml)

* **Medical Abbreviations**
* **Fractions** and Decimals (conversion of fractions to decimal, decimal to percent)
* **Ratios**, percent to decimal

* **Decimal to Percent** = you will have to Multiple the decimal by **100**

CONVERSIONS YOU NEED TO KNOW

Weight:
1 mg = 1000 mcg
1 g = 1000 mg = 10^6 mcg (1,000 000)
1g = 15 gr (grain)
1 kg = 1000 g = **2.2 lbs**
1lb = 16 oz = **454 g**
1 gr (grain) = 60 mg (standard)

Volume:
1 ml = 1 **cubic centimeter**(cc)= **15 gtts**
1 tsp (teaspoon) = 5 mL
1 tbsp (tablespoon) = 15 mL = **3 tsp**
1 tbsp = 3 tsp (teaspoon)
1 oz = 30 mL = **2 tbsp** = **6 tsp**
1 oz = **2 tbsp** = **6 tsp**
6 oz = 1 teacup
8 oz = 1 cup or glass = 240 mL
16 oz = 1 pint = **2 cups**
*1 pt = ½ quart ≈ 500 mL = ½ liter(L)
2 pints = 32 oz = 4 cups = **1 quart**
1 L = 1,000 mL ≈ 1 quart
1 gal = 4 quarts

Temperature: T_c = °C; T_F = °F
T_F = 1.8T_c + 32
$T_c = \frac{(T_F - 32)}{1.8}$

Length:
1 inch (in) = 2.5 cm
12 inch (inches) = 1 ft
1 meter = 100 centimeter (cm)

$$Wanted\ Qty = \frac{O}{H} \times Qty \quad (Qty - on\ hand\ unit = ml, tablet, capsule)$$

O = order (from doctor); H = on hand at the facility; pharmacy/medicine cabinet
Wanted Qty = (or is either) **Tablets** (tab), **Capsule** (cap) or **Milliliter** (ml)
*Note: The O and H must be in the <u>same unit</u>. If not, you must <u>convert</u> one to the other.

*Use this formula if you need to do a conversion of units within the question
For example: if you need to convert -> **mg to mcg,** or **mg to g,** or **lbs to kg**

$$Desired\ Qty = \frac{O}{H} \times Conv.factor \times Qty \quad (on\ hand \rightarrow ml, tab, cap)$$

O = order (from doctor); H = on hand at the facility; pharmacy/medicine cabinet
Desired Qty = **Tablets** (tab), **Capsule** (cap) or **Milliliter** (ml)

$$\frac{drops}{min} = \frac{gtts}{min} = FR \times \frac{1hr}{60\ min} \times DF = \frac{FR \times DF}{60\ (\frac{min}{hr})} \qquad FR = \text{Flow rate (is in ml/hr)}$$

DF (gtts/ml) = drop factor = **10, 15, 20** (**macro**); **60** (**micro**); **gtts** = means drops

$$\frac{w}{x} = \frac{y}{z} \qquad\qquad \frac{w}{x} = \frac{y}{z}$$

$$w * z = x * y \quad or \quad w : x :: y : z$$

$$\text{Flow Rate } (\frac{ml}{hr}) = \frac{\text{Total IV volume } (ml)}{\text{Total infused Time } (hr)}$$

LIB (left in bag) Calculation

Step1 – Calculate: $(T_2 - T_1)$ = **Elapsed time (hr)** = [2nd time - 1nd time] nurse saw patient

Step2 - Calculate: Infused amount (ml) = **Flow Rate** $(\frac{ml}{hr})$ x $(T_2 - T_1)$

Step 3 - LIB (ml) = Starting (original) order **– Infused amount** (ml) **or**

Step 3' - LIB (ml) = LIB IV Volume (ml) **– Infused amount** (ml)

HEPARIN (Concentration in Unit (U))- Calculations

Heparin Infused rate = $\frac{U}{hr}$; Heparin Supply (On-hand) = $\frac{U}{ml}$ = heparin per ml

Heparin IV infusion rate $(\frac{ml}{hr})$ = $(\frac{Infused\ rate}{Heparin\ Supply})$ = $(\frac{\frac{U}{hr}}{\frac{U}{ml}})$ = $[\frac{U}{hr} \times \frac{ml}{U}]$ = **ml/hr**

$$Tot.Infusion\ time(hr) = \frac{Total\ IV\ Volume(ml)}{Flow\ rate}$$

FR = **Flow rate** (ml/hr)

$$\text{Flow Rate } (\frac{ml}{hr}) = \frac{\text{Total IV volume } (ml)}{\text{Total infused Time } (hr)}$$