

# What do I need to know for the MAT 102 Proficiency Exam?

## Types of Questions:

1. Calculating dosage; tablets or liquids, IV or IM, with or without unit conversions, standard and apothecary units of measure.

Ordered: Myambutol 1.2 g, po qd  
Available: Myambutol 400 mg per tablet  
How many tablets of Myambutol will you give?

$$1.2 \text{ g} = 1200 \text{ mg} \quad \frac{400 \text{ mg}}{1 \text{ tab}} = \frac{1200 \text{ mg}}{x \text{ tab}} \quad \frac{400x}{400} = \frac{1200}{400} \quad x = 3 \text{ tablets}$$

2. Calculating dosage based upon body weight.

Ordered: Tetracycline Elixir qid for a child weighing 90 lbs at a dosage of 8 mg/kg/day  
Available: Tetracycline 50 mg per 7 mL  
How many mL will you give per dose? per day?

$$\frac{1 \text{ kg}}{2.2 \text{ lbs}} = \frac{x \text{ kg}}{90 \text{ lbs}} \quad \frac{2.2x}{2.2} = \frac{90}{2.2} \quad x \sim 41 \text{ kg} \quad \frac{8 \text{ mg}}{1 \text{ kg}} = \frac{x \text{ mg}}{41 \text{ kg}} \quad x = 328 \text{ mg}$$

$$\frac{50 \text{ mg}}{7 \text{ mL}} = \frac{328 \text{ mg}}{x \text{ mL}} \quad \frac{50x}{50} = \frac{2296}{50} \quad x \sim 46 \text{ mL/day} \quad 46 \div 4 \sim 12 \text{ mL/dose}$$

3. IV Calculations; drip rate (infusion set) or flow rate (infusion pump)

An IV of 1000 mL was ordered to infuse in 8 hours.  
With 3 hours to infusion time left you discover that 600 mL have infused.  
The set delivers 20 gtt/mL.  
Recalculate the drip rate to deliver the fluid on time.

$$\frac{20 \text{ gtt}}{1 \text{ mL}} = \frac{x \text{ gtt}}{400 \text{ mL}} \quad x = 8000 \text{ gtt} \quad 3 \text{ hrs} * 60 \text{ min} = 180 \text{ minutes}$$

$$\frac{8000 \text{ gtt}}{180 \text{ min}} = \frac{x \text{ gtt}}{1 \text{ min}} \quad \frac{180x}{180} = \frac{8000}{180} \quad x \sim 44 \text{ gtt/min}$$

4. IV Calculations; flow time; infusion set or infusion pump

The doctor orders 1000 mL of penicillin G potassium.  
The administration set delivers 10 gtt/mL and the flow rate is 21 gtt/min.  
How much time will it take to infuse the IV?

$$\frac{10 \text{ gtt}}{1 \text{ mL}} = \frac{x \text{ gtt}}{1000 \text{ mL}} \quad x = 10000 \text{ gtt} \quad \frac{21 \text{ gtt}}{1 \text{ min}} = \frac{10000 \text{ gtt}}{x \text{ min}} \quad \frac{21x}{21} = \frac{10000}{21} \quad x = 476 \text{ min} = \sim 8 \text{ hrs}$$

5. Reading Drug Labels to determine amount of diluent, type of diluent, dosage strength and length of potency.

## Required Terms and Units of Measure:

### Drug Delivery

IM	intramuscularly
IV	intravenously
IVP	intravenous push
IVPB	intravenous piggyback
SC (SQ)	subcutaneously

### Common IV Fluids

D	= dextrose
W	= Water
NS	= normal saline
D5W	= 5% dextrose in water, etc.
.9%NS	= .9% saline in water, etc.

### Standard Units of Measure

cc	cubic centimeter (1 cc = 1 mL)
G (gm, Gm)	gram
kg (Kg)	kilogram
L	liter
µg (mcg)	microgram (1000 mcg = 1 mg)
mEq	milliequivalent
mg	milligram
mL (ml)	milliliter
unit (U)	unit
tbsp (T)	tablespoon ( <b>1 tbs = 15 mL</b> )
tsp (t)	teaspoon ( <b>1 tsp = 5 mL</b> )
oz	ounce ( <b>1 oz = 30 mL</b> )

**1 kg = 2.2 lbs**

### Apothecary Units of Measure

3	dram liquid (1 dram = 4 mL)
3	ounce liquid (1 ounce = 32 mL)
gr	grain - weight of a grain of wheat
gtt	drop (1 drop = 1 minim)
m	minim
i	one ex: gr i = one grain
ss	one-half ex: gr ii ss = 2 ½ grains, etc.

**1 gr = 60 mg**

### Metric Prefixes

kilo    hecto    deca    unit (grams or liters)    deci    centi    milli    \_\_\_\_    \_\_\_\_    micro

### Drug Administration

qd	every day, daily
bid	twice a day
tid	three times a day
qid	four times a day
qh	every hour
stat	immediately
q2h or q2°	every 2 hours
q4h or q4°	every 4 hours
q6h or q6°	every 6 hours
q8h or q8°	every 8 hours
q12h or q12°	every 12 hours
qod	every other day
prn	as needed
tiw	three times per week
biw	twice per week