Instructions for Medications Quiz & Study Guide for Medication Quiz
N432

<u>If you do not pass the medication quiz with 90% or greater you will have to take the medication remediation quiz. You will need to arrange a time to take the remediation quiz with your instructor</u>

Review math conversions for medications from your pharmaceutical class.

Conversions

- milliliters (mL) to cubic centimeters (cc)
- grams to milligrams
- kilograms to pounds
- pounds to kilograms
- teaspoons to milliliters
- milliliters to ounces
- mcg to mg

GTT rate: total volume (in mL) divided by time (in min), multiplied by the drop factor (in **gtts**/mL), which equals the IV flow **rate** in **gtts**/min ml/mins x gtt/ml = gtt/min

Review newborn intramuscular injection sites

Sample questions and how they are calculated:

1. **The doctor has ordered Tylenol 600mg. You have available Tylenol tablets, 300mg each. How many tablets will you give?**

   The known quantity is 600mg
   The unit you are solving for is tablet
   Now, set up the problem:

   Tabs/1 = 600mg/1 x 1 tab/300mg

   Cross cancel the mg's to eliminate them.

   Tabs/1 = 600~~mg~~/1 x 1 tab/300~~mg~~

   This leaves only the unit you are solving for.
   You now have only one unit left –tablets. This is the unit you are solving for.

   Reduce 600 and 300 by eliminating 2 zeroes from each

Tab = 6/1 x 1 tab/3 = 6 tab/3 = 2 tabs

Or set it up like this:
X Tabs = 600mg
300mg/1 tablet = 600mg/X tablet

Multiply through by X tab/300mg:
X tab/300mg x 300mg/1 tab = X tab/300mg x 600mg/X tab

Cross cancel the tabs; the 300mg on the left side and the X tab and the mg on the ride side.
X ~~tab~~/~~300mg~~ x ~~300mg~~/1 ~~tab~~ = ~~X tab~~/300~~mg~~ x 600~~mg~~/~~X tab~~
X = 600/300 = 2

Does the answer make logical sense?
Never consider a problem solved until you think about whether or not the answer makes sense. The order was for 600mg. Each tablet contains 300mg. Does the patient need more than 1 tablet or less? The patient needs more than 1 tablet because he needs more than 300mg.

2. **Order: Demerol 50mg IM. Available: Demerol 75mg per ml. Give___ml**
   75mg/1ml = 50mg/X
   75~~mg~~/1ml = 50~~mg~~/X
   X/50mg x 75mg/1ml = X/50mg x 50mg/X
   ~~1ml~~/50~~mg~~ x 75~~mg~~/~~1ml~~ = 1ml/~~50mg~~ x ~~50mg~~/X
   75/50=X ml
   1.5= Xml

3. **A newborn lost 7% of birth weight of 3648 gm. How much do they now weigh in gr, kg, lbs.**

   Conversion factor: 1000 gms=1 kg=2.2lbs

   Subtract the % change (in this case 7) from 100 = 93

   Multiply the original weight by .93

   3648 X .93= 3392.7gm This is the current weight in grams.

   To change to pounds 3392.7 grams /1000= 3.3927 kilograms X 2.2= 7.46 lbs

   1 kg = 2.2 pounds

   1 kg = 1000 grams
   1 kg = 32 ounces (actually 32.15 ounces if you're a purist)
   1 ounce = approx 30 gram (actually 31.1 grams if you're a purist)

1 ounce = 30 ml (or cc's)
1 liter = 1000 ml
1 pound = 454 grams (actually 453.59 grams if you're a purist)
1 pound = 15 ounces (14.583 ounces if you're a purist)

Whenever you see a word problem asking for a percentage of something you are looking at a multiplication problem. Expressing the answer in grams, kg or pounds involves applying a conversion factor to the final answer. all of this can be easily accomplished using dimensional analysis (factor label method), like this:

7/100 (percentage) x (of) 3648 grams/1 (baby's weight) = 255.36, or 255 grams (rounded off)

That is the 7% weight loss.

To find the baby's weight now, subtract that from the starting weight so that 3648 grams (starting weight) - 255 (7% weight loss) = 3393 grams (current weight)

To convert to kg:

3393 grams/1 (baby's current weight) x 1 kg/1000 grams (conversion factor) = 3.393 kg

4. **Ordered: 2000 mg Cefotaxime IV one time.**
You check the vials of Ceftriaxone and see they contain 1gm of drug in 10ml of solution.

2000 mg/1 x 1 gm/1000 mg x 10 ml/1 gm
Next you get to crossing things off that cancel each other out:

2000 ~~mg~~/1 x 1 ~~gm~~/1000 ~~mg~~ x 10 ml/1 ~~gm~~

You're just left with ml, which is exactly what you need to know. Now it's time to do some math!
1) Multiply across the top: 2000 x 1 x 10
2) Divide across the bottom: ÷ by 1000 ÷ by 1
2000 ~~mg~~/1 x 1 ~~gm~~/1000 ~~mg~~ x 10 ml/1 ~~gm~~ = 20ml

5. Ordered 1000 mL D5W IV to infuse in 10 hours by infusion pump.

$$\frac{\text{Volume (mL)}}{\text{Time (hr)}} = \text{Y (Flow Rate in mL/hr)}$$

$$\frac{1000\text{ mL}}{10\text{ hr}} = \boxed{\textbf{100 mL/hr}}$$

Now try some on your own.

6. The nurse is to administer Ibuprofen 600mg po q 6 hours pain. Available dose is 200mg/tablet. How many tablets should the nurse administer?

7. A nurse is preparing to administer Amoxicillin 250 mg by IV bolus over 30 min Q 8 hours. Available is Amoxicillin 250 mg premixed in 100 mL 0.90% sodium chloride (NaCl). The nurse should set the IV pump to deliver how many mL/hr? (Round the answer to the nearest whole number. Use a leading zero if it applies. Do not use a trailing zero.)

8. A nurse is preparing to administer 10 mcg of Engerix-B (Hepatitis B vaccine) IM. The medication is available in 0.01 mg/0.5 mL. How much should the nurse administer? (Round to the nearest tenth. Use a leading zero when applicable. Do not use a trailing zero.

9. The order reads: begin a Pitocin infusion @ 3mu/min. You have on hand Pitocin 30 units in 500ml of Lactated Ringers. How should you set the pump?

10. Magnesium sulfate 30 grams is mixed in 500 ml Lactated Ringers. Order: infuse a maintenance dose of magnesium sulfate @ 4 grams/hour. How many ml/hr will the IV run?

11. The provider ordered 1L 0.9NS to run over 6 hours. Your tubing has a drop factor of 15gtts/ml. What will the gtt/min be? Round to the nearest whole number.

Answers:

6. 3 tabs
7. 200ml/hr
8. 1000 mcg/1mg or 10 mcg/0.5 ml so you will give 0.5ml of Engeris-B
9. 3ml/hr
10. 66.7 or 67 ml/hr
11. 42 gtt/min