PRACTICE PROBLEMS

Practice Problem 1:

The order you have is:
1000mL D5NS q 12 h

The patient will receive a large or small bag of fluid?

Correct answer is a.

a. Large
b. Small

B. Incorrect. 1000mL is a large bag of fluid.

The bag of fluid contains no electrolytes.

Correct answer is b.

a. True
b. False

A. Incorrect. The NS in the order means normal saline .
Saline has sodium and chloride in it.

B: Correct. NS means normal saline. Saline always contains sodium and chloride which are electrolytes.

The solution provides the patient with some calories.

Correct answer is a.

a. True
b. False

A Correct. The "D" in the order means "dextrose" which provides calories.

Practice Problem 2

The order you have is:

Vancomycin 500 mg in 150mL NS to run over 60 minutes via IVPB q8h

The medication in 150 mL NS is considered the patient's main IV.

Correct answer is b.

a. True
b. False

A: Incorrect. This medication is to be put in only 150mL of fluid and will only run for 1 hour. This is an intermittent IV, not a "main" IV

B: Correct. The order clearly states this is an IV piggyback. This bag will only run for 1 hour so is not a "main" IV.

How much fluid is in the IV bag?

Correct answer is b.

a. 500 mg
b. 150 mL
c. 60 mL

A Incorrect. 500mg is the dry weight of the drug Vancomycin. mg is never a fluid measure. Do not confuse "mL" with "mg", which is easy to do since they look so much alike.

B Correct. The order asks for 150 mL of NS

C: Incorrect. Re-read the problem carefully. There is not a 60 mL value in this order.

The fluid in the IVPB is a saline solution with 0.45% sodium chloride in it.

Correct answer is b.

a. True
b. False

A Incorrect. NS is a saline solution so will have sodium and chloride, but NS stands for normal saline; normal saline is a 0.9% solution. A 0.45% saline solution is half normal saline

B Correct. NS stands for normal saline which is 0.9% sodium and chloride. A 0.45% solution is half normal saline.

How long will it take for the 150mL of NS to flow into the patient?

Correct answer is a.

a. 1 hour
b. 8 hours

A Correct. The order instructs you to infuse the bag in 60 minutes, or 1 hour.
B Incorrect. This is how often you will hang the bag of medication, but each bag will infuse over 60 minutes. Do not confuse infusion time with frequency of dosing.

Practice Problem 3

The IV tubing has a drop factor of 10. In one minute 30 drops have fallen in the drop chamber.

How many mL have been infused?

Correct answer is c.

a. 1 mL
b. 2 mL
c. 3 mL

A Incorrect. Only 10 drops are needed for 1 mL to fall. If 30 drops have fallen, more than 1 mL must have infused.
If you had trouble with this problem, treat it as a simple conversion. Set up as a conversion, the information looks like this:

$$\frac{30\,\cancel{gtts}}{1} \times \frac{1\,mL}{10\,\cancel{gtts}} = 3\,mL$$

B Incorrect. 20 drops would equal 2 mL.
If you had trouble with this problem, treat it as a simple conversion. Set up as a conversion, the information looks like this:

$$\frac{30\,\cancel{gtts}}{1} \times \frac{1\,mL}{10\,\cancel{gtts}} = 3\,mL$$

C Correct.
If you had trouble with this problem, treat it as a simple conversion. Set up as a conversion, the information looks like this:

$$\frac{30\cancel{gtts}}{1} \times \frac{1mL}{10\cancel{gtts}} = 3mL$$

Practice Problem 4
The IV tubing has a drop factor of 20gtts/mL.

How many drops must fall in order for 10 mL to be infused?

Correct answer is c.

a. 20 gtts
b. 100 gtts
c. 200 gtts
d. 2000 gtts

C Correct. If it takes 20 drops to infuse 1 mL, it will take 10 times that number to infuse 10 mL:

$$\frac{20gtts}{1\cancel{mL}} \times \frac{10\cancel{mL}}{1} = 200gtts$$

Practice Problem 5

You have an IV set with a drip factor of 60 gtts/mL.

If 30 gtts fall each minute, how many mL will the patient receive in one hour?

Correct answer is b.

a. 15 mL
b. 30 mL
c. 60 mL
d. 120 mL

A Incorrect.
Treat this as a simple conversion problem looking for an answer in mL, then account for the time factor:

$$\frac{30\,gtts}{1} \times \frac{1\,mL}{60\,gtts} = 0.5mL$$

Now you know how many mL fall in one minute, so how many fall in one hour?

In one hour, sixty minutes will pass: $\frac{0.5\,mL}{1\,\text{min}} \times \frac{60\,\text{min}}{1} = 30mL$

B Correct: Each minute 30 gtts fall. This means only ½ a mL falls each minute.

In one hour, sixty minutes will pass: $\frac{0.5\,mL}{1\,\text{min}} \times \frac{60\,\text{min}}{1} = 30mL$

C. Incorrect. Treat this as a simple conversion problem looking for an answer in mL, then account for the time factor:

$$\frac{30\,gtts}{1} \times \frac{1\,mL}{60\,gtts} = 0.5mL$$

Now you know how many mL fall in one minute, so how many fall in one hour?

In one hour, sixty minutes will pass: $\frac{0.5\,mL}{1\,\text{min}} \times \frac{60\,\text{min}}{1} = 30mL$

D Incorrect.
Treat this as a simple conversion problem looking for an answer in mL, then account for the time factor:

$$\frac{30\,gtts}{1} \times \frac{1\,mL}{60\,gtts} = 0.5mL$$

Now you know how many mL fall in one minute, so how many fall in one hour?

In one hour, sixty minutes will pass: $\frac{0.5\,mL}{1\,\text{min}} \times \frac{60\,\text{min}}{1} = 30mL$

These problems should help you see how you can use the drop factor in simple calculations. In the modules that follow, you will need to use the drop factor in any question that asks you to calculate gtts/minute.

Be sure never to confuse gtts/mL, which is the drop factor, with gtts/minute, which tells you how fast the fluid is infusing.