

Hazelyn Hunter

PROFICIENCY TEST

Basic IV Problems

Name: _____

There are 14 questions related to IV and IVPB and enteral feeding calculations. Answers are given in Appendix A. Round to the nearest whole number.

9/28/25

1. Order: 1000 mL D5NS; run 150 mL/hour IV
Supply: IV bag of 1000 mL D5NS
 - a. Approximately how many hours will the IV run? *6.6 hrs / 6hr & 36min*
 - b. How many drops per minute (macro drip 10 gtt/mL or micro drip 60 gtt/mL)? *25 gtt/min macro drip*
 - c. What size tubing will you use? *macro tubing*
2. Order: 100 mL LR 12 noon-6 pm IV
 - a. What are the drops per minute (macro drip 10 gtt/mL or micro drip 60 gtt/mL)? *16.6 -> 17 gtt/min*
 - b. What size tubing will you use? *micro drip*
3. Order: 150 mL NS IV over 3 hours
Supply: bag of 250 mL NS for IV and macro tubing, 15 gtt/mL; micro tubing, 60 gtt/mL
 - a. What would you do to obtain 150 mL NS? *let the bag run for 100 mL*
 - b. What are the drops per minute? *12.5 -> 13 gtt/min macro drip*
 - c. What size tubing will you use? *macro drip*
4. Order: 500 mL D5W IV KVO. Solve for 24 hours. An infusion pump is available. What should be the setting on the infusion pump? *2 mL/hr*
5. Order: doxycycline (Vibramycin) 100 mg IVPB every day
Supply: 100 mg powder
Package directions: 250 mL/D5W to infuse over 1 hour; macro drip tubing 10 gtt/mL
 - a. State the amount and type of IV fluid you will use and the time for infusion you will use.
 - b. What are the drops per minute? *reconstitution with 250 mL D5W & give over an hour*
6. Order: aminophylline 500 mg in 250 mL D5W to run 8 hours IV
Available: vial of aminophylline labeled 1 g in 10 mL; micro drip tubing
 - a. How much aminophylline is needed? *5 mL aminophylline*
 - b. What is the drip rate? *42 gtt/min*
7. A client is receiving a primary IV at the rate of 125 mL/hour. The doctor orders cefoxitin (Mefoxin) 1 g in 75 mL D5W q6h to run over 1 hour. Calculate the 24-hour parenteral intake. *2800 mL*
8. Order: 1000 mL D5 1/2 NS to run at 90 mL/hour; infusion pump available
 - a. What will be the pump setting? *90 mL/hr*
 - b. Approximately how long will the IV run? *11 hrs & 6 mins*
9. A doctor orders 500 mL aminophylline 0.5 g to infuse at 50 mL/hour. How many milligrams will the client receive each hour? *50 mg*
10. Order: trimethoprim and sulfamethoxazole (Bactrim) 5 mL IVPB q6h
Supply: vial of 5 mL; one 5-mL vial per 75 mL D5W run over 60 to 90 minutes.
The main IV line is connected to an infusion pump. What will you do?
 - a. State the type and amount of IV fluid you would use and the time for infusion.
 - b. How would you program the infusion pump?

A. 100 mL D5W but remove 25 mL then add the 5 mL Bactrim to the 75 mL of D5W for 60 mins.

B. Turn on pump for 60 mins -> *Volume -> 75 mL*
 for 90 mins -> *2nd rate -> 75 mL/hr*
2nd volume 75 mL
2nd rate 50 mL/hr

** Always LABEL the IVPB **

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PROFICIENCY TEST Basic IV Problems (continued)

11. Prepare 3/4 strength Isocal. Total volume is 150 mL. How much Isocal is to be mixed with how much water? 112.5 mL Isocal with 37.5 mL H₂O
12. Prepare 1/2 strength Vivonex. Total volume is 500 mL. How much Vivonex is to be mixed with how much water? 250 mL Vivonex with 250 mL H₂O
13. Prepare 25% Osmolite. Total volume is 400 mL. How much Osmolite is to be mixed with how much water? 100 mL Osmolite with 300 mL H₂O
14. Prepare full strength Isocal. Total volume is 500 mL. How much Isocal is to be mixed with how much water?

500 mL Isocal with no water

SELF-TEST 1 Infusion Rates

Solve the following problems. Answers appear at the end of this chapter. Round the rate to the nearest whole number.

1. Order: heparin sodium 800 units/hour IV
 Supply: infusion pump, standard solution of 25,000 units in 250 mL D5W
 a. What is the rate? *8 mL/hr*
 b. How many hours will the IV run? *31.3 hrs → 31 hr + 18 mins*
2. Order: acyclovir (Zovirax) 500 mg in 100 mL D5W IV over 1 hour
 Supply: infusion pump, acyclovir (Zovirax) 500 mg in 100 mL D5W
 What is the rate? *100 mL/hr*
3. Order: aminocaproic acid (Amicar) 24 g over 24 hour IV
 Supply: infusion pump, aminocaproic acid (Amicar) 24 g in 1000 mL D5W
 What is the rate? *42 mL/hr*
4. Order: diltiazem (Cardizem) 10 mg/hour IV
 Supply: infusion pump, diltiazem (Cardizem) 125 mg in 100 mL D5W
 What is the rate? *8 mL/hr*
5. Order: furosemide (Lasix) infuse 4 mg/hour
 Supply: infusion pump, furosemide (Lasix) 100 mg in 100 mL D5W
 What is the rate? *4 mL/hr*
6. Order: regular insulin 15 units/hour IV
 Supply: infusion pump, standard solution of 125 units in 250 mL NS
 a. What is the rate? *30 mL/hr*
 b. How many hours will this IV run? *8 hrs + 18 mins*
7. Order: nitroglycerin 50 mg in 250 mL D5W over 24 hour via infusion pump
 What is the rate? *10 mL/hr*
8. Order: heparin 1200 units/hour IV
 Supply: infusion pump, standard solution of 25,000 units in 500 mL D5W
 a. What is the rate? *24 mL/hr*
 b. How many hours will the IV run? *20 hr + 48 min / 20.8 hrs*
9. Order: regular insulin 23 units/hour IV
 Supply: infusion pump, standard solution of 250 units in 250 mL NS
 a. What is the rate? *23 mL/hr*
 b. How many hours will the IV run? *10 hr + 54 min / 10.9 hrs*
10. Order: streptokinase (Streptase) 100,000 international units/hour for 24 hour IV
 Supply: infusion pump, standard solution of 750,000 international units in 250 mL NS
 What is the rate? *33 mL/hr*



MATH 44
 Ig/Minute
 Formula

MATH 45
 g/Minute in
 ratios and
 proportions

MATH 46
 g/Minute in
 dimensional
 Analysis

mg/minute—Calculation of Rate

The order will indicate the amount of drug added to IV fluid and also the amount of drug to administer. These medications are administered through an IV infusion pump in milliliters per hour.

Note: The dimensional analysis method will combine all of the calculation steps into one equation.