

**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?  $8\text{ mL/hr}$
  - b. How many hours will the IV run?  $31\text{ hours}$
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?  $100\text{ mL/hr}$
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?  $42\text{ mL/hr}$
4. Order: diltiazem (Cardizem) 10 mg/hour IV  
Supply: infusion pump, diltiazem (Cardizem) 125 mg in 100 mL D5W  
What is the rate?  $8\text{ mL/hr}$
5. Order: furosemide (Lasix) infuse 4 mg/hour  
Supply: infusion pump, furosemide (Lasix) 100 mg in 100 mL D5W  
What is the rate?  $4\text{ mL/hr}$
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?  $30\text{ mL/hr}$
  - b. How many hours will this IV run?  $8\text{ hours}$
7. Order: nitroglycerin 50 mg in 250 mL D5W over 24 hour via infusion pump  
What is the rate?  $10\text{ mL/hr}$
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?  $24\text{ mL/hr}$
  - b. How many hours will the IV run?  $21\text{ hours}$
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?  $23\text{ mL/hr}$
  - b. How many hours will the IV run?  $11\text{ hours}$
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?  $33\text{ mL/hr}$



MATH 44  
mg/Minute  
Formula

MATH 45  
mg/Minute in  
ratios and  
proportions

MATH 46  
mg/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.

## PROFICIENCY TEST

## Basic IV Problems

Name: Hadley

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.

- Order: 1000 mL D5NS; run 150 mL/hour IV  
Supply: IV bag of 1000 mL D5NS
  - Approximately how many hours will the IV run? 6 hours
  - How many drops per minute (macro drip 10 gtt/mL or microdrip 60 gtt/mL)? 25 gtt/min
  - What size tubing will you use? macro tubing
- Order: 100 mL LR 12 noon-6 pm IV
  - What are the drops per minute (macro drip 10 gtt/mL or microdrip 60 gtt/mL)? 360 minutes
  - What size tubing will you use? microdrip 17 gtt/minute
- 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
  - What would you do to obtain 150 mL NS? allow 100 mL to run off
  - What are the drops per minute? 50 gtt/minute
  - What size tubing will you use? microdrip
- 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
- 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  
100 mg powder to 250 mL D5W -> give IVPB over 1 hour
  - State the amount and type of IV fluid you will use and the time for infusion you will use.
  - What are the drops per minute? 42 gtt/minute
- Order: aminophylline 500 mg in 250 mL D5W to run 8 hours IV  
Available: vial of aminophylline labeled 1 g in 10 mL; microdrip tubing
  - How much aminophylline is needed? 5 mL
  - What is the drip rate? 31 gtt/minute
- 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
- Order: 1000 mL D5 1/2 NS to run at 90 mL/hour; infusion pump available
  - What will be the pump setting? 90 mL/hour
  - Approximately how long will the IV run? 11 hours
- 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
- 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?
  - State the type and amount of IV fluid you would use and the time for infusion. 75 mL D5W
  - How would you program the infusion pump? Bacterim time  
1560 minutes

Set for 60 minutes  
Secondary vol = 75 mL  
Secondary rate = 75 mL/hr

## 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?  
38 mL water
12. Prepare 1/2 strength Vivonex. Total volume is 500 mL. How much Vivonex is to be mixed with how much water?  
250 mL water
13. Prepare 25% Osmolite. Total volume is 400 mL. How much Osmolite is to be mixed with how much water?  
300 mL water
14. Prepare full strength Isocal. Total volume is 500 mL. How much Isocal is to be mixed with how much water?

0 mL water