SELF-TEST 2 Dosage Calculations

In these practice problems, determine whether the doses are safe and calculate the amount needed. Round the lb to kg weight conversions to the nearest hundredth. Answers appear at the end of the chapter. Unless stated, solve for the amount of drug per dose.

1. Order: amoxicillin 60 mg po q8h
   Child: Weight 20 lb
   Supply: amoxicillin 125 mg/5 mL
   Literature: 20 to 40 mg/kg/day in divided doses q8h

2. Order: amoxicillin/clavulanate 175 mg po q8h
   Child: Weight 29 lb
   Supply: Bottle of 125 mg/5 mL
   Literature: 40 mg/kg/day in divided doses q8h

3. Order: ferrous sulfate 200 mg po tid
   Child: 9 years old and weighs 30 kg
   Supply: bottle of 125 mg/5 mL
   Literature: children 6 to 12 years old, 600 mg/day, in divided doses tid

4. Order: acetaminophen 80 mg po q4h prn for temp 100.9° F and above
   Child: 6 years old and weighs 20.5 kg
   Supply: chewable tablets 80 mg
   Literature: For child 6 to 8 years, give four chewable tablets. May repeat four or five times daily. Not to exceed five doses in 24 hours.

5. Order: diazepam 1 mg IM q3–4h prn
   Infant: 30 days old
   Supply: vial 5 mg/1 mL
   Literature: child <6 mo IM 1 to 2.5 mg tid or qid

6. Order: Morphine 2 mg subcutaneous q3–4h for pain
   Child: 3 years old and weighs 14 kg
   Supply: injection labeled 2 mg/mL
   Literature: starting dose 0.05 to 0.2 mg/kg; not to exceed 15 mg/dose

7. Order: metoclopramide 5 mg po q6h
   Child: 3 years old and weighs 30 kg
   Supply: syrup 5 mg/5 mL
   Literature: 0.1 to 0.2 mg/kg/dose up to four times a day

8. Order: cefotaxime 0.5 g IM q6h
   Child: Weight 48 lb
   Supply: injection reconstituted 300 mg per 1 mL
   Literature: for children <50 kg, 100 to 200 mg/kg/day, divided q6h

9. Order: azithromycin po 300 mg × 1 dose
   Child: 10 years old and weighs 30 kg
   Supply: oral suspension 100 mg/5 mL in 15-mL bottle
   Literature: children 2 to 15 years, 10 mg/kg (not more than 500 mg/dose) on day 1

10. Order: phenytoin po 60 mg bid
    Infant: Weight 12 lb 8 oz
    Supply: phenytoin suspension 30 mg/5 mL
    Literature: 4 to 8 mg/kg/day divided into two doses. Maximum dose is 300 mg/day.

Formula Method

$$\frac{\overset{4}{\cancel{0.500}}\ \cancel{mg}}{\underset{1}{\cancel{0.125}}\ \cancel{mg}} \times 1 \text{ tablet} = 4 \text{ tablets}$$

Proportion

EXPRESSED AS TWO RATIOS

1 tablet:0.125 mg : : x:0.5 mg

EXPRESSED AS TWO FRACTIONS

$$\frac{1 \text{ tablet}}{0.125 \text{ mg}} \times \frac{x}{0.5 \text{ mg}}$$

SOLUTION FOR BOTH PROPORTION METHODS

$$0.5 = 0.125x$$

$$\frac{\overset{4}{\cancel{0.500}}\ mg}{\underset{1}{\cancel{0.125}}\ mg} = x$$

4 tablets = x

Dimensional Analysis

$$\frac{1 \text{ tablet}}{\underset{1}{\cancel{0.125}}\ \cancel{mg}} \left| \frac{\overset{4}{\cancel{0.500}}\ \cancel{mg}}{} \right. = 4 \text{ tablets}$$

SELF-TEST 1 Oral Solids

Solve these practice problems. Answers are given at the end of the chapter. Remember the four methods:

Formula Method

$$\frac{\text{Desire}}{\text{Have}} \times \text{Supply} = x$$

Proportion

EXPRESSED AS TWO RATIOS

Supply:Have : : x:Desire

EXPRESSED AS TWO FRACTIONS

$$\frac{\text{Supply}}{\text{Have}} = \frac{x}{\text{Desire}}$$

Dimensional Analysis

Supply	Desire
Have	

(add conversion factors as needed)

1. *Order:* dexamethasone 1.5 mg po bid
   Supply: tablets labeled 0.75 mg — $\frac{1.5}{.75} = 2$ tabs
2. *Order:* digoxin 0.25 mg po every day
   Supply: scored tablets labeled 0.5 mg — $\frac{0.25}{0.5} = 0.5$ tabs
3. *Order:* ampicillin 0.5 g po q6h
   Supply: capsules labeled 250 mg — $\frac{500}{250} = 2$ caps
4. *Order:* prednisone 10 mg po tid
   Supply: tablets labeled 2.5 mg — $\frac{10}{2.5} = 4$ tabs
5. *Order:* aspirin 650 mg po stat
   Supply: tablets labeled 325 mg — $\frac{650}{325} = 2$ tabs
6. *Order:* nifedipine 20 mg po bid
   Supply: capsules labeled 10 mg — $\frac{20}{10} = 2$ caps
7. *Order:* fluphenazine 10 mg po daily
   Supply: tablets labeled 2.5 mg — $\frac{1}{2.5} \left| \frac{10}{x} \right. = \frac{10}{2.5} = 4$ tabs

SELF-TEST 1 Oral Solids (Continued)

8. Order: penicillin G potassium 200,000 units po q8h
   Supply: scored tablets labeled 400,000 units
   $\frac{1}{400{,}000} \mid \frac{200{,}000}{x} = 0.5$ tabs

9. Order: digoxin 0.5 mg po every day
   Supply: scored tablets labeled 0.25 mg
   $\frac{1 \text{ tab}}{0.25 \text{ mg}} \mid \frac{0.5 \text{ mg}}{x} = 2$ tabs

10. Order: captopril 18.75 mg po tid
    Supply: scored tablets labeled 12.5 mg
    $\frac{1}{12.5} \mid \frac{18.75}{} = 1.5$ tabs

11. Order: quetiapine 300 mg po bid
    Supply: scored tablets labeled 200 mg
    $\frac{1}{200 \text{ mg}} \mid \frac{300 \text{ mg}}{} = 1.5$ tabs

12. Order: clonidine 0.3 mg po at bedtime
    Supply: tablets labeled 0.1 mg
    $\frac{1}{0.1} \mid \frac{0.3}{} = 3$ tabs

13. Order: captopril 6.25 mg po bid
    Supply: scored tablets labeled 25 mg
    $\frac{1}{25} \mid \frac{6.25}{} = 0.25$ tabs

14. Order: clonidine 400 mcg po every day
    Supply: tablets labeled 0.2 mg
    $\frac{1}{0.2} \mid \frac{0.4}{} = 2$ tab

15. Order: warfarin 7.5 mg po every day
    Supply: scored tablets labeled 5 mg
    $\frac{1}{5} \mid \frac{7.5}{} = 1.5$ tabs

16. Order: glyburide 0.625 mg every day
    Supply: scored tablets labeled 1.25 mg
    $\frac{1}{1.25} \mid \frac{0.625}{} = 0.5$

17. Order: naproxen 0.5 g po every day
    Supply: scored tablets labeled 250 mg
    $\frac{1}{250} \mid \frac{500}{} = 2$ tabs

18. Order: hydrochlorothiazide 37.5 mg po every day
    Supply: scored tablets labeled 25 mg
    $\frac{1}{25} \mid \frac{37.5}{} = 1.5$ tab

19. Order: cephalexin 1 g po q6h
    Supply: capsules labeled 500 mg
    $\frac{1}{500} \mid \frac{1000}{} = 2$ caps

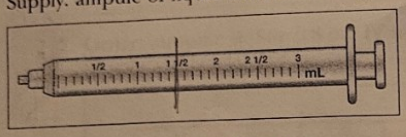
20. Order: baclofen 25 mg po tid
    Supply: scored tablets labeled 10 mg
    $\frac{1}{10} \mid \frac{25}{} = 2.5$ tabs

PROFICIENCY TEST 1 Calculations of Liquid Injections

Name: _____

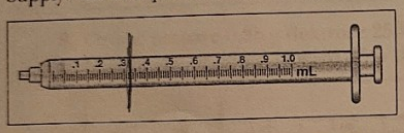
Solve these injection problems. Draw a line on the syringe indicating the amount you would prepare in milliliters. See Appendix A for answers.

1. Order: sodium amytal 0.1 g IM at 7 AM = 100mg
   Supply: ampule of liquid labeled 200 mg/3 mL



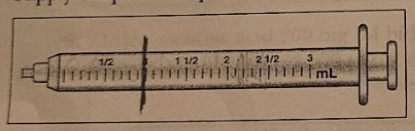
$\frac{3\,mL}{200mg} \times \frac{100mg}{x} = \frac{300}{200} = 1.5\,mL$

2. Order: morphine sulfate 5 mg IV stat
   Supply: vial of liquid labeled 15 mg/mL (round to the nearest hundredths)



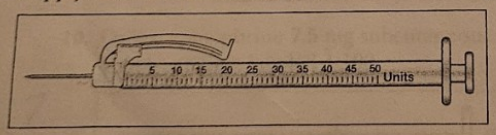
$\frac{1\,mL}{15mg} \times \frac{5mg}{x} = \frac{5}{15} = 0.33\,mL$

3. Order: diphenhydramine 25 mg IM q4h prn
   Supply: ampule of liquid labeled 50 mg/2 mL



$\frac{2\,mL}{50mg} \times \frac{25mg}{x} = \frac{50}{50} = 1\,mL$

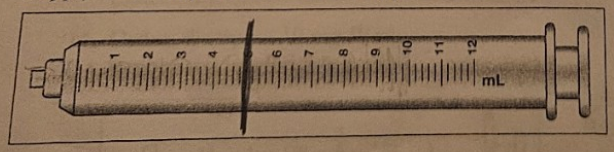
4. Order: NPH insulin 15 units and regular insulin 5 units subcutaneous every day at 7 AM
   Supply: vials of NPH insulin 100 units/mL and regular insulin 100 units/mL



$\frac{1\,mL}{100u} \times \frac{15u}{x} = \frac{15}{100} = 0.15$

$\frac{1\,mL}{100u} \times \frac{5u}{x} = \frac{5}{100} = 0.05$ $= 0.2\,mL$

5. Order: prepare 20 mEq potassium chloride (that will be added to IV fluids for infusion)
   Supply: vial of liquid labeled 40 mEq per 10 mL

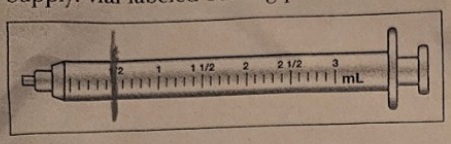


$\frac{10\,mL}{40mEq} \times \frac{20mEq}{x} = \frac{200}{40} = 5\,mL$

(continued)

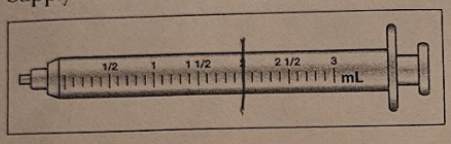
FICIENCY TEST 1 Calculations of Liquid Injections (*continued*)

12. Order: chlordiazepoxide 25 mg IM bid
Supply: vial labeled 100 mg per 2 mL



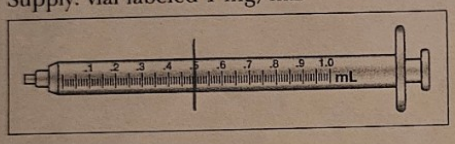
$\frac{2}{100mg} \times \frac{25}{x} = \frac{50}{100} = 0.5\,mL$

13. Order: hydroxyzine 50 mg IM bid
Supply: vial labeled 25 mg/mL



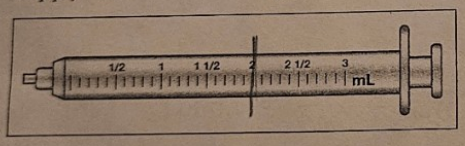
$\frac{1}{25mg} \times \frac{50mg}{x} = \frac{50}{25} = 2mL$

14. Order: lorazepam 0.5 mg IV q4h
Supply: vial labeled 1 mg/mL



$\frac{1mL}{1mg} \times \frac{0.5}{x} = \frac{0.5}{1} = 0.5mL$

15. Order: phenytoin 0.2 g IM stat = 200 mg
Supply: vial labeled 200 mg/2 mL



$\frac{2mL}{200} \times \frac{200}{x} = \frac{400}{200} = 2mL$