

Review of Arithmetic for Medical Dosage Calculations

Chapter Overview

$$5\frac{3}{4} \div 23$$

Chapter 1 reviews the arithmetic concepts needed for the rest of the textbook. It covers the basics of whole numbers, fractions, decimal numbers, and percents and includes a Diagnostic Test to evaluate the student's knowledge of the arithmetic required for medical dosage calculation. This chapter can be omitted for those students who are proficient in basic arithmetic.

Instructor's Notes

- The Diagnostic Test may be used in a number of ways. It can be given at the beginning of the first class, and the teacher or students themselves can grade the test. The test results can then be used to initiate a discussion of those areas of arithmetic in which the students show weakness.
- This chapter can also be assigned as independent study. Students can take the Diagnostic Test and then review those sections of the chapter that need review. Subsequent class meetings could address areas of student concern.
- The teacher could first present a review of basic arithmetic following the flow of topics and examples in the chapter, and then assign the Diagnostic Test for homework.
- Rather than covering all the topics in this chapter, the instructor might choose to review only those topics with which the students might not be familiar. These could include ratios, complex fractions, percent of change, and the three methods of rounding (rounding *off*, *down*, and *up*).
- Calculator keystroke sequences in the margins are provided to help students improve their calculator proficiency. Students should be encouraged to work the problems by hand, and then check their answers on a calculator.
- Try These for Practice problems are designed to be done in class but may be designated for homework.
- The Exercises and/or Additional Exercises can be given as homework or as in-class assignments. The answers to the Diagnostic Test, Try These for Practice, and Exercises are in Appendix A of the textbook. Answers for Additional Exercises are not in the textbook for the instructor who prefers to give homework without answers provided.
- The answers to Additional Exercises are in this *Instructor's Resource Manual*.

Key Terms

approximate answer	numerator	rounding <i>off</i>
canceling	percentage	percentage
complex fraction	percent of change	rate
denominator	rounding <i>down</i>	ratio
improper fraction	rounding <i>up</i>	truncating

Answers to Chapter 1 Additional Exercises

- | | | |
|------------------------------|------------------------------|----------------------------|
| 1. $\frac{13}{20}$ | 2. $7\frac{1}{2}$ | 3. 1 |
| 4. $\frac{3}{5}$ | 5. $23\frac{1}{13}$ | 6. $8\frac{2}{5}$ |
| 7. 5 | 8. 0.12 | 9. 0.56 |
| 10. 5.3 | 11. 0.005 | 12. 0.01 |
| 13. 0.87 | 14. 0.0228 | 15. 2.8 |
| 16. 0.8 | 17. 0.9 | 18. 0.0625 |
| 19. 0.009 | 20. 1.50 | 21. 0.47 |
| 22. 4.7 | 23. 2.6 | 24. 53.84 |
| 25. $\frac{63}{125}$ and 0.5 | 26. $17\frac{1}{3}$ and 17.3 | 27. $\frac{1}{49}$ and 0.3 |
| 28. $\frac{45}{7}$, 6.4 | 29. $\frac{1}{8}$, 0.1 | 30. $\frac{3}{8}$, 0.4 |
| 31. $\frac{1}{2}$ | 32. $\frac{2}{3}$ | 33. 60 |
| 34. 6 | 35. 9.95 | 36. 0.838 |
| 37. 0.7 | 38. 16 | 39. 25% increase |
| 40. 30% decrease | | |

Chapter 1 Examination Questions

Convert these to fractions in lowest terms.

- | | |
|---------|---------|
| 1. 0.35 | 2. 6:10 |
|---------|---------|

Convert these fractions to decimal numbers rounded *off* to the nearest tenth.

- | | |
|------------------|-------------------|
| 3. $\frac{3}{8}$ | 4. $\frac{73}{7}$ |
|------------------|-------------------|

Convert to decimal numbers rounded *down* to tenths.

- | | |
|-----------------------|--------------------------|
| 5. $\frac{13.66}{10}$ | 6. $\frac{0.0274}{0.12}$ |
|-----------------------|--------------------------|

Multiply the numbers.

7. 2.3×0.03

8. $9.2 \times 1,000$

Divide the decimal numbers and round *off* the answers to the nearest hundredth.

9. $0.23 \div 0.03$

10. $56.9 \div 100$

Write the answers as fractions in lowest terms.

11. $\frac{22}{15} \times \frac{70}{60} \times \frac{15}{77}$

12. $0.525 \div 0.84$

Write the percentage as a decimal number.

13. 0.9%

14. 44%

Write the percentage as a fraction in lowest terms.

15. 87.5%

16. 0.9%

Simplify to the form of a simple fraction in lowest terms.

17. $\frac{2/3}{6}$

18. $\frac{0.02}{0.3}$

19. Which is the larger quantity? 0.8 or $\frac{3}{4}$

20. What is 35% of 80?

21. $\frac{4}{5} = \frac{?}{25}$

22. $\frac{8}{64} = \frac{?}{16}$

23. $8 - 4.002 = ?$

24. Write the answer in mixed fractional form: $7.5 - 2\frac{3}{4}$

25. A dosage is increased from 8 ounces to 12 ounces. What is the percent of increase?

Answers to Chapter 1 Examination Questions

1. $\frac{7}{20}$

2. $\frac{3}{5}$

3. 0.4

4. 10.4

5. 1.3

6. 0.2

7. 0.069

8. 9,200

9. 7.67

10. 0.57

11. $\frac{1}{3}$

12. $\frac{5}{8}$

13. 0.009

14. 0.44

15. $\frac{7}{8}$

16. $\frac{9}{1,000}$

17. $\frac{1}{9}$

18. $\frac{1}{15}$

19. 0.8

20. 28

21. 20

22. 2

23. 3.998

24. $4\frac{3}{4}$

25. 50%