

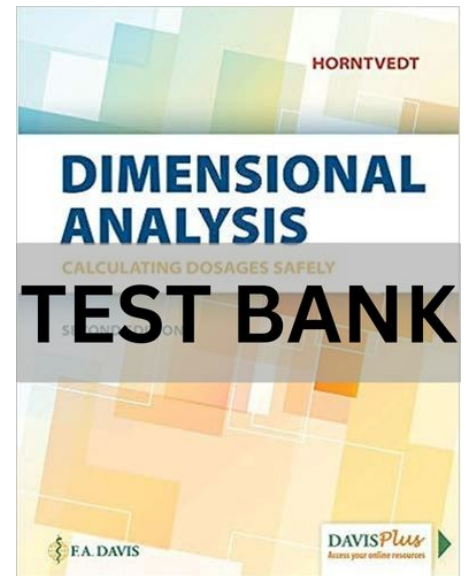
Dimensional Analysis: Calculating Dosages Safely 2nd Edition Test Bank

Whole Numbers

CHAPTER 1

- Which of the following are ways that numbers may be correctly expressed? **Select all that apply.**
 - Inverse
 - Rational
 - Decimals
 - Proper
 - Fractions
- Place the mathematical operations in the correct order they should be performed:
 - Perform the operations that require adding or subtracting, starting from left to right.
 - Perform the operations that are inside the parentheses first.
 - Perform the operations that require multiplying or dividing, starting from left to right.
- Which numbers are considered whole numbers? **Select all that apply.**
 - 10,000
 - 20
 - 0
 - 7
 - $\frac{3}{5}$
- Which signs indicate that a division operation should be performed? **Select all that apply.**
 - \times
 - $/$
 - $*$
 - \div
 -
- Which of the following is true regarding the order of mathematical operations?
 - Perform operations that are inside parentheses first.
 - Perform operations that require multiplying or dividing, starting from right to left.
 - Perform operations that require adding or subtracting before multiplying or dividing.
 - Perform operations that are inside parentheses last.
- For the number 2,875,634, which number is in the hundreds place?
 - 2
 - 8
 - 6
 - 4

Calculate the following equations.



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7. $6,157 + 816 =$ _____

8. $8,153,757 + 4,514 =$ _____

9. $845 - 627 =$ _____

10. $48,685 - 7,526 =$ _____

11. $84 \times 75 =$ _____

12. $16 \times 8 =$ _____

13. $16 \div 4 =$ _____

14. $21 \div 7 =$ _____

15. $27 \div 3 =$ _____

ANSWERS

Whole Numbers

CHAPTER 1

1. Which of the following are ways that numbers may be correctly expressed? **Select all that apply.**

1. Inverse
2. Rational
3. Decimals
4. Proper
5. Fractions

ANS: 2, 3, 5

Rationale: Numbers may be expressed as integers, rational or irrational numbers, real numbers, fractions, decimals, whole numbers, or factors.

2. Place the mathematical operations in the correct order they should be performed:
1. Perform the operations that require adding or subtracting, starting from left to right.
 2. Perform the operations that are inside the parentheses first.
 3. Perform the operations that require multiplying or dividing, starting from left to right.

ANS: 2, 3, 1

Rationale: This is the correct order for performing mathematical operations. See Box 1-3 in text.

3. Which numbers are considered whole numbers? **Select all that apply.**

1. 10,000
2. -20
3. 0
4. 7
5. $\frac{3}{5}$

ANS: 1, 3, 4

Rationale: Whole numbers are called *natural numbers* or *counting numbers*. They include 0 and all positive numbers such as 1, 2, 3, 4 and so on.

4. Which signs indicate that a division operation should be performed? **Select all that apply.**

1. \times
2. $/$
3. $*$
4. \div
5. $-$

ANS: 2, 4

Rationale: These symbols are indications that a division operation should be performed. The other symbols listed are for multiplication and subtraction.

5. Which of the following is true regarding the order of mathematical operations?

1. Perform operations that are inside parentheses first.

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2. Perform operations that require multiplying or dividing, starting from right to left.
3. Perform operations that require adding or subtracting before multiplying or dividing.
4. Perform operations that are inside parentheses last.

ANS: 1

Rationale: The order of mathematical operations is as follows:

- 1) Perform operations that are inside the parentheses first.
- 2) Perform the operations that require multiplying or dividing first, starting from left to right.
- 3) Perform the operations that require adding or subtracting next, starting from left to right.

6. For the number 2,875,634, which number is in the hundreds place?

1. 2
2. 8
3. 6
4. 4

ANS: 3

Rationale: The place values of the number 2,875,634 from left to right are as follows: millions (2), hundred thousands (8), ten thousands (7), thousands (5), hundreds (6), tens (3), and ones (4).

7. $6,157 + 816 =$ _____

ANS: 6,973

Rationale:

$$\begin{array}{r} 1 \\ 6157 \\ + 816 \\ \hline 6973 \end{array}$$

8. $8,153,757 + 4,514 =$ _____

ANS: 8,158,271

Rationale:

$$\begin{array}{r} 1 \quad 1 \\ 8153757 \\ + 4514 \\ \hline 8158271 \end{array}$$

9. $845 - 627 =$ _____

ANS: 218

Rationale:

$$\begin{array}{r} 31 \\ 845 \\ - 627 \\ \hline 218 \end{array}$$

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10. $48,685 - 7,526 =$ _____

ANS: 41,159

Rationale:

$$\begin{array}{r} 71 \\ 48685 \\ - 7526 \\ \hline 41159 \end{array}$$

11. $84 \times 75 =$ _____

ANS: 6,300

Rationale:

$$\begin{array}{r} 2 \\ 2 \\ 84 \\ \times 75 \\ \hline 1 \\ 1420 \\ 5880 \\ \hline 6300 \end{array}$$

12. $16 \times 8 =$ _____

ANS: 128

Rationale:

$$\begin{array}{r} 4 \\ 16 \\ \times 8 \\ \hline 128 \end{array}$$

13. $16 \div 4 =$ _____

ANS: 4

Rationale:

$$4 \overline{) 16} \quad 4$$

14. $21 \div 7 =$ _____

ANS: 3

Rationale:

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$$7 \overline{) 21} \begin{array}{r} 3 \\ \hline \end{array}$$

15. $27 \div 3 =$ _____

ANS: 9

Rationale:

$$3 \overline{) 27} \begin{array}{r} 9 \\ \hline \end{array}$$

Fractions

CHAPTER 2

16. When working with fractions, what is the term for the greatest common number that divides evenly into both the numerator and the denominator?
6. Divisor
 7. Factor
 8. Dividend
 9. Product
17. When adding fractions with different denominators, the fractions must be changed to have a common denominator. What is the term for this change?
1. Transforming
 2. Averaging
 3. Lowering
 4. Raising
18. Reducing a fraction to the lowest terms involves which of the following?
6. Finding a factor that divides evenly into both the numerator and denominator
 7. Finding a common denominator for the fractions and adding the numerators
 8. Finding a common denominator for the fractions and subtracting the smaller fraction from the larger one
 9. Multiplying the numerators and denominators of the fractions
19. Which statements are true when discussing improper fractions? **Select all that apply.**
6. Numerators are greater than or equal to their denominators.
 7. Improper fractions contain both a whole number and a fraction.
 8. The value of an improper fraction is greater than or equal to one.
 9. Numerators are less than their denominators.
 10. Improper fractions contain a numerator and denominator that are both divisible by the number two.
20. Which of the following operations require finding a common denominator before completing the equation? **Select all that apply.**
5. Adding fractions
 6. Subtracting fractions
 7. Multiplying fractions

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8. Dividing fractions
9. Reducing reactions

21. Which of the following is true regarding mixed fractions?

5. The numerator is always greater than the denominator.
6. The value is always less than one.
7. It contains both a whole number and a fraction.
8. It contains a decimal point.

22. A fraction represents parts of a whole and is written with a numerator on top and a _____ on bottom.

Calculate the following. If applicable, show your answer as a mixed fraction.

23. $2 + \frac{3}{4} =$ _____

24. $\frac{5}{9} + \frac{3}{9} =$ _____

25. $3\frac{3}{8} + \frac{1}{4} =$ _____

26. $\frac{4}{5} - \frac{3}{5} =$ _____

27. $\frac{9}{3} - \frac{1}{9} =$ _____

28. $\frac{7}{2} \times \frac{3}{14} =$ _____

29. $3\frac{4}{5} \times \frac{1}{3} =$ _____

30. $\frac{1}{4} \div \frac{1}{8} =$ _____

31. $\frac{7}{8} \div \frac{2}{3} =$ _____

ANSWERS

Fractions

CHAPTER 2

1. When working with fractions, what is the term for the greatest common number that divides evenly into both the numerator and the denominator?
 1. Divisor
 2. Factor
 3. Dividend
 4. Product

ANS: 2

Rationale: The greatest common number, or factor, is one that divides evenly into both the numerator and the denominator.

2. When adding fractions with different denominators, the fractions must be changed to have a common denominator. What is the term for this change?
 1. Transforming
 2. Averaging
 3. Lowering
 4. Raising

ANS: 4

Rationale: Adding fractions with different denominators involve “raising” fractions to higher terms to have a common denominator.

3. Reducing a fraction to the lowest terms involves which of the following?
 1. Finding a factor that divides evenly into both the numerator and denominator
 2. Finding a common denominator for the fractions and adding the numerators
 3. Finding a common denominator for the fractions and subtracting the smaller fraction from the larger one
 4. Multiplying the numerators and denominators of the fractions

ANS: 1

Rationale: Reducing a fraction to the lowest terms involves finding a factor that divides evenly into both the numerator and denominator. (2) refers to adding fractions, (3) refers to subtracting fractions, and (4) refers to multiplying fractions.

4. Which statements are true when discussing improper fractions? **Select all that apply.**
 1. Numerators are greater than or equal to their denominators.
 2. Improper fractions contain both a whole number and a fraction.
 3. The value of an improper fraction is greater than or equal to one.

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4. Numerators are less than their denominators.
5. Improper fractions contain a numerator and denominator that are both divisible by the number two.

ANS: 1, 3

Rationale: Improper fractions have numerators that are greater than or equal to their denominators. The value of an improper fraction is equal to or greater than one. Mixed fractions contain both a whole number and a fraction. Proper fractions have numerators that are less than their denominators. Divisibility by two does not affect whether a fraction is proper or improper.

5. Which of the following operations requires finding a common denominator before completing the equation? **Select all that apply.**
 1. Adding fractions
 2. Subtracting fractions
 3. Multiplying fractions
 4. Dividing fractions
 5. Reducing reactions

ANS: 1, 2

Rationale: Adding fractions requires finding a common denominator for the fractions, adding the numerators, and then reducing the result to the lowest terms. Subtracting fractions requires finding a common denominator for the fractions, subtracting the smaller fraction from the larger one, and then reducing the result to the lowest terms. The other options do not require finding a common denominator.

6. Which of the following is true regarding mixed fractions?
 1. The numerator is always greater than the denominator.
 2. The value is always less than one.
 3. It contains both a whole number and a fraction.
 4. It contains a decimal point.

ANS: 3

Rationale: Mixed fractions contain both whole numbers and fractions. (1) refers to improper fractions, (2) refers to proper fractions, and (4) is incorrect.

7. A fraction represents parts of a whole and is written with a numerator on top and a _____ on bottom.

ANS: denominator

Rationale: A fraction represents parts of a whole and is written with a numerator on top and a denominator on bottom.

8. $2 + \frac{3}{4} =$ _____

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ANS: $2\frac{3}{4}$

Rationale: Convert 2 into a fraction with a common denominator by multiplying $2 \times 4 = 8$. Then add the numerators: $\frac{8}{4} + \frac{3}{4} = \frac{11}{4}$. To represent this as a mixed number, divide $11 \div 4 = 2$, with 3 left over, or $2\frac{3}{4}$.

9. $\frac{5}{9} + \frac{3}{9} = \underline{\hspace{2cm}}$

ANS: $\frac{8}{9}$

Rationale: Add the numerators: $\frac{5}{9} + \frac{3}{9} = \frac{8}{9}$.

10. $3\frac{3}{8} + \frac{1}{4} = \underline{\hspace{2cm}}$

ANS: $3\frac{5}{8}$

Rationale: First, convert the mixed number into an improper fraction: $\frac{27}{8}$. Then find a common denominator for the second number: 8. So, the second number is converted to $\frac{2}{8}$. Add the numerators: $\frac{27}{8} + \frac{2}{8} = \frac{29}{8}$. To represent this as a mixed number, divide $29 \div 8 = 3$ with 5 left over, or $3\frac{5}{8}$.

11. $\frac{4}{5} - \frac{3}{5} = \underline{\hspace{2cm}}$

ANS: $\frac{1}{5}$

Rationale: Subtract the numerators: $\frac{4}{5} - \frac{3}{5} = \frac{1}{5}$.

12. $\frac{9}{3} - \frac{1}{9} = \underline{\hspace{2cm}}$

ANS: $2\frac{8}{9}$

Rationale: Find common denominator (9), make the conversion ($3 \times 9 = 27$), and then subtract the fractions: $\frac{27}{9} - \frac{1}{9} = \frac{26}{9}$. To represent this as a mixed fraction, divide $26 \div 9 = 2$, with 8 left over, or $2\frac{8}{9}$.

13. $\frac{7}{2} \times \frac{3}{14} = \underline{\hspace{2cm}}$