Summary Chapter 1: Foundations
Intermediate Algebra from OpenStax, a free and open online textbook

Section 1: Terminology

- Variable
- Algebraic Expression
- Terms
- Similar (Like) Terms

Be Able To
- Use the order of operations
- Evaluate algebraic expressions
- Simplify algebraic expressions
- Translate English phrases to algebraic expressions
- Apply the concepts

Section 2: Terminology

- Integers
- Absolute value
- Exponent

Be Able To
- Add and subtract integers
- Multiply and divide integers
- Simplify expressions with absolute value, integers and/or exponents
- Translate English phrases to expressions with integers
- Apply the concepts

Section 3: Terminology

- Fractions

Be Able To
- Simplify or reduce fractions
- Multiply and divide fractions
- Add and subtract fractions
- Use the order of operations to simplify fractions
- Evaluate variable expressions with fractions

Section 4: Terminology

- Decimals
- Square roots

Be Able To
- Round decimals
- Convert decimals, fractions, and percents
- Add and subtract decimals
- Multiply and divide decimals
- Simplify expressions with square roots

Section 5: Terminology

- Commutative, associative and distributive property
- Identity, inverse and zero property

Be Able To
- Use commutative, associative and distributive property
- Use identity, inverse and zero property

Sample Applications of Chapter 1 Content

- Use a given expression to calculate target heart rate

Example: \( 220 - a \) where \( a \) is your age

- Use a given expression to calculate Basal Metabolic Rate (BMR) for women

Example: \( 4.545x + 15.875y + 5z - 161 \) where \( x \) is weight in pounds, \( y \) is height in inches and \( z \) is age in years.

- Use a given expression to calculate Basal Metabolic Rate (BMR) for men

- Use a given formula to calculate a drug dosage
Example: \(x = \frac{D}{A}\) where \(x\) is the number of tablets to administer to the patient, \(D\) is the prescribed dosage ordered by the physician and \(A\) is the available dosage.

- Use a given formula to calculate deductions
- Use a given formula to calculate gross pay
- Use a given formula to calculate pay from tutoring job
- Use a given formula to calculate car rental price
- Use a given formula to calculate minimum wage
- Use a given formula to find pulse pressure

Example: \(P = S - D\) where \(P\) is the pulse pressure, \(S\) is the systolic blood pressure and \(D\) is the diastolic blood pressure

- Use a given formula to calculate Body Mass Index (BMI)

Example: \(BMI = \frac{W}{H^2} \times 703\) where \(W\) is the weight in pounds and \(H\) is the height in inches

- Use a given formula to determine Body Mass Index (BMI) range