

Virginia Western Community College

MTH 132

Business Mathematics

Prerequisites

MTE 1-3 or MDE 10

Course Description

Provides instruction, review, and drill in percentage, cash and trade discounts, mark-up, payroll, sales, property and other taxes, simple and compound interest, bank discounts, loans, investments, and annuities. This course is intended for occupational/technical programs.

Semester Credits: 3 Lecture Hours: 3 Lab/Clinical/Internship Hours: 0

Required Materials

Textbook:

**Practical Business Math Procedures, Slater, Wittry, 13th Edition, McGraw Hill Education.
ISBN: 9781260967524**

Other Required Materials:

Calculator

Course Outcomes

At the completion of this course, the student should be able to:

- **Communication**
 - Interpret and communicate quantitative information and mathematical and statistical concepts using language appropriate to the context and intended audience.
- **Problem Solving**
 - Make sense of problems, develop strategies to find solutions, and persevere in solving them.
- **Reasoning**
 - Reason and draw conclusions or make decisions with quantitative information.
- **Evaluation**
 - Critique and evaluate quantitative arguments that utilize mathematical, statistical, and quantitative information.
- **Technology**
 - Use appropriate technology in a given context.

Communication and basic skills

- Solve application problems by interpreting the materials presented, including determining the nature and extent of the information needed, and present the answer in standard English.
- Estimate and consider answers to mathematical problems in order to determine reasonableness.
- Correctly calculate sums, differences, products and quotients of whole numbers, fractions and mixed numbers, and decimal numbers without the use of a calculator.
- Perform basic calculator operations
- Solve a formula for any specified variable.
- Convert decimal numbers and fractions to and from percents.

Banking Applications

- Solve word problems using the basic percentage formula.
- Identify the component parts of a check, check stub and deposit slip.
- Perform simple banking transactions, rectify bank statements.
- Calculate simple interest, compound interest and simple discount.
- Use the formulas for maturity value and present value for simple interest loans.
- Use tables to calculate present value and future value.
- Find the monthly mortgage payment, interest and PITI and prepare a partial amortization schedule.
- Calculate sales, property, loans with closed-end credit and open-end credit

Taxes

- Calculate Payroll, income taxes.
- Calculate gross earnings based on salaries, commissions and wages.
- Calculate overtime earnings for wages, salaries, and commissions.
- Calculate State withholding taxes.
- Calculate FICA and Medicare taxes for employees and self-employed individuals.
- Calculate Federal withholding taxes using the wage bracket and percentage methods.
- Calculate an employer's Federal Tax Liability.

Business Applications

- Complete an invoice.
- Calculate the selling price for an item using markup and markdown.
- Use the basic percentage formula to calculate trade, chain, quantity and cash discounts, and net cost.
- Use complements to calculate net cost.
- Calculate the equivalent single discount for a series discount.
- Determine the last date of a discount period.
- Calculate the selling price for an item using markup and markdown.
- Determine the break-even point and the amount of a profit/loss.

Topical Description

Chapter 1: Review of Whole Number and Integers

- 1.1 Place Value and Our Number System
- 1.2 Operations with Whole Numbers and Integers

Chapter 2: Review of Fractions

- 2.1 Fractions
- 2.2 Adding and Subtracting Fractions
- 2.3 Multiplying and Dividing Fractions

Chapter 3: Decimals

- 3.1 Decimals and the Place-Value System
- 3.2 Operations with Decimals
- 3.3 Decimal and Fraction Conversions

Chapter 4: Banking

- 4.1 Checking Account Transactions
- 4.2 Bank Statements

Chapter 5: Equations

- 5.1 Equations
- 5.2 Using Equations to Solve Problems
- 5.3 Formulas

Chapter 6: Percents

- 6.1 Percent Equivalents
- 6.2 Solving Percentage Problems
- 6.3 Increases and Decreases

Chapter 8: Trade and Cash Discounts

- 8.1 Single Trade Discounts
- 8.2 Trade Discount Series
- 8.3 Cash Discounts and Sales Terms

Chapter 9: Markup and Markdown

- 9.1 Markup based on Cost
- 9.2 Markup Based on Selling Price and Markup Comparisons
- 9.3 Markdown, Series of Markdowns, and Perishables

Chapter 10: Payroll

- 10.1 Gross Pay
- 10.2 Payroll Deductions
- 10.3 The Employer's Payroll Taxes

Chapter 11: Simple Interest and Simple Discount

- 11.1 The Simple Interest Formula
- 11.2 Ordinary and Exact Interest
- 11.3 Promissory Notes

Chapter 12: Consumer Credit

- 12.1 Installment Loans and Closed-End Credit
- 12.2 Paying a Loan Before It Is Due: The Rule of 78
- 12.3 Open End Credit

Chapter 13: Compound Interest, Future Value, and Present Value

- 13.1 Compound Interest and Future Value
- 13.2 Present Value

Chapter 14: Annuities and Sinking Funds

- 14.1 Future Value of an Annuity
- 14.2 Sinking Funds and the Present Value of an Annuity

Chapter 16: Mortgages

- 16.1 Mortgage Payments
- 16.2 Amortization Schedules and Qualifying Ratios

Chapter 20: Taxes

- 20.1 Sales Tax and Excise Tax
- 20.2 Property Tax
- 20.3 Income Taxes

Chapter 21: Financial Statements

- 21.1 : The Balance Sheet
- 21.2 : Income Statements
- 21.3 Financial Statement Ratios

Notes to Instructors

- **Microsoft Excel or Google Sheets should be used when appropriate. MS Excel templates are available as an instructor resource to this text.**