

MTH 130 MODERN BUSINESS MATHEMATICS (revised 09/09)

Throughout the course, the student should be able to manipulate formulas to obtain a solution to a problem depending on what is unknown.

1. Arithmetic Review

- 1.1 Review rounding numbers to a specific place value.
- 1.2 Review simplifying fractions to lowest terms.

2. Ratios and Proportions

- 2.1 Set up a ratio.
- 2.2 Reduce a ratio to lowest terms by:
 - 2.2a. using the GCF.
 - 2.2b. dividing and expressing the answer as a single numerical value or as a comparison to 1.
- 2.3 Solve a proportion.
- 2.4 Solve a problem by first setting up a proportion and then solving that proportion.

3. Percents and Percentages

- 3.1 Work with decimals, fractions and percents and convert from one form to another when necessary.
- 3.2 Identify and calculate base, rate and percentage in various types of problems.

4. Business Graphs

- 4.1 Construct (by hand and/or using Excel) and interpret the following types of graphs with emphasis on the interpretation:
 - 4.1a. line graphs
 - 4.1b. bar graphs
 - 4.1c. circle graphs (Rectangle graphs are optional.)

5. Statistics

- 5.1 Calculate the mean, median, and mode for ungrouped data. (Optional: Calculate the midrange and range for ungrouped data.)
- 5.2 Know the difference between and calculate a regular mean and a weighted mean.
- 5.3 Calculate and interpret a percentile ranking.
- 5.4 Determine which data value is at a specific percentile.

6. Financial Statements

- 6.1 Complete an income statement and a comparative income statement.
- 6.2 Complete a balance sheet and a comparative balance sheet.
- 6.3 Calculate the working capital ratio (current ratio) and the quick ratio for a given balance sheet.

7. Commercial Discounts

- 7.1 Calculate the % paid and the SED for trade discounts.
- 7.2 Calculate the net cost and the dollar amount of a discount on merchandise after a:
 - a. trade discount.
 - b. chain discount.
 - c. cash discount.
- 7.3 Determine the time periods, payments, credits and balances for problems involving cash discounts.

8. Retailing

- 8.1 Determine the cost and/or selling price of merchandise when markup is based on either quantity.
- 8.2 Determine the percent of markup based on either cost or selling price when the cost and the selling price are known.
- 8.3 Determine the selling price and/or sale price after a markdown.
- 8.4 Determine the percent of markdown when the selling price and the sale price are known.
- 8.5 Determine the break-even amount.
- 8.6 Determine whether there is a net profit, net loss or neither after a markdown.
- 8.7 (Optional) Calculate a unit price.
- 8.8 (Optional) Calculate average inventory and turnover at cost and selling price.

9. Payroll

- 9.1 Calculate gross pay for a person receiving a wage, salary, piece rate, commission or any combination of these.
- 9.2 Calculate Federal withholding tax.
- 9.3 Calculate FICA tax.
- 9.4 Calculate net pay for a person receiving a wage, salary, piece rate, commission or any combination of these.

10. Taxes

- 10.1 Calculate sales taxes and property taxes and rates.

11. Insurance

- 11.1 Calculate the premiums for owner's, motor vehicle and life insurance using tables. (Optional: Calculate the premium for medical insurance using tables.)
- 11.2 Determine insurance settlements for owner's and motor vehicle insurance.

12. Simple Interest

- 12.1 Calculate simple interest, amount, principal, rate and time.
- 12.2 Solve application problems involving simple interest notes and bank discount notes.

13. Compound Interest

- 13.1 Calculate compound interest, amount and present value.

14. Annuities

- 14.1 Calculate the compound interest, amount and periodic payment on an ordinary annuity.
- 14.2 Solve application problems involving the concepts listed in 13.1 and 14.1.

15. Business and Consumer Loans

- 15.1 Use the average daily balance method to find the finance charge and new balance for open-end credit and charge cards.
- 15.2 Find the total installment cost and the finance charge on installment loans.
- 15.3 Find the APR for installment loans.