Business Calculator Operations
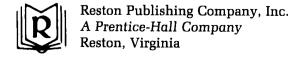
Joan Elizabeth Warner   **second edition**

Business Calculator Operations

Second Edition

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Definition of Terms

Addend A number to be added.

Aliquot part Any number that can be divided evenly into another number; e.g., 5 is an aliquot part of 100.

Are An area 10 meters wide by 10 meters long (pronounced "air").

Bond A certificate of indebtedness.

C Per hundred.

Cancel To divide a number into a numerator and a denominator in a group of fractions that are to be multiplied.

Celsius thermometer Shows the freezing point of water at 0° C. and the boiling point of water at 100° C.

Centigram One-hundredth of a gram.

Centiliter One-hundredth of a liter.

Centimeter One-hundredth of a meter.

Chain discount A series of discounts, one to be applied on the net balance resulting from the previous discount.

Check register A record of checks written on an account, and showing a running balance.

Complement The difference between a number and the next power of ten. The complement of 7 is 3; the complement of 80 is 20.

Constant A value that remains the same in a series of problems.

Credit balance The balance which results when minus amounts are greater than plus amounts.

Denominator Shows the number of parts into which the whole is divided; e.g., in 2/3, the whole is divided into three parts.

Deposit slip A record of money deposited in a bank account.

Depreciation Allocating the cost of an asset over its period of life.

Difference The answer in a subtraction problem; the difference between the minuend and the subtrahend. Sometimes called the remainder.

Digit A single number from 0 to 9.

Dividend (a) In a division problem, the number that is to be divided. (b) Money or other value paid to stockholders.

Divisor In a division problem, the number that is to be divided into the dividend.

FICA The Social Security tax paid by the employer and the employee to provide for benefits.

Fraction One or more parts of a whole number; e.g., 1/4, 3/8.

Gram .0353 ounce.

Gross One hundred and forty-four.

Gross pay Pay earned before deductions.

Hectare An area 100 meters wide by 100 meters long.

Improper fraction One in which the numerator is larger than the denominator; e.g., 8/5.

Installment loan A loan which is repaid in partial payments over a period of time.

Interest, compound Interest which is paid on both the principal and the accumulated interest.

Interest, simple The amount that is paid or charged for the use of money.

Kilogram One thousand grams.

Kiloliter One thousand liters.

Kilometer One thousand meters.

Liter 1.0567 liquid quarts.

Lowest common denominator (LCD) The smallest denominator into which all the denominators in a problem can be divided evenly.

Markdown Lowering the regular selling price of an item for a special sale, for damaged goods, etc.

Markon The amount added by retailers to the cost price.

Markup Usually defined as the amount added to the selling price of an item; sometimes used to mean the amount added to the cost price.

Mean An average; the mean is found by adding the individual values and dividing the sum by the number of values.

Median An average; the midpoint in an array of values.

Memory An additional register or registers on some models of electronic calculators and other business machines, used to accumulate, store, and recall products, quotients, or sums.

Meter 39.37 inches.

Metric ton One thousand kilograms or 2,204.6 pounds.

Milligram One-thousandth of a gram.

Milliliter One-thousandth of a liter.

Millimeter One-thousandth of a meter.

Minuend The number to be subtracted from.

Mixed number Contains a whole number and a fraction; e.g., 4-3/7.

Mode The value occurring most frequently in an array of values.

Multiplicand The number to be multiplied.

Multiplier The number by which the multiplicand is multiplied.

Net pay Pay after deductions.

Non-add feature The capability of many office machines to print a reference number on the tape without that number being included in the calculations.

Numerator Shows the number of parts; e.g., in 2/3, the number of parts is 2.

Percent A part of the whole based on 100.

Premium Payments on insurance policies.

Prime number One that can be divided evenly only by itself or by 1; e.g., 7.

Principal The amount of money borrowed or lent.

Product The answer in a multiplication problem.

Promissory note A promise to pay a certain amount of money.

Proper fraction One in which the numerator is smaller than the denominator; e.g., 2/3.

Proration The proportional division of an amount.

Quire Twenty-four.

Quotient The answer in a division problem.

Ream Five hundred sheets of paper.

Reciprocal The number 1 divided by the number. For example, the reciprocal of 4 is $1 \div 4$ or 1/4 or .25.

SI The International System of Units (metrics).

Stock   A certificate that shows ownership in a company.

Subtotal   The amount accumulated thus far in the computation. Printing or displaying a subtotal does not clear the machine of the amounts entered.

Subtrahend   The number to be subtracted from the minuend.

Sum   The answer in an addition problem.

Touch method   Using correct fingering to enter figures on the ten-key keyboard by touch without looking at the keyboard.

Transposition   The acccidental reversing of digits; e.g., copying 4<u>27</u> instead of 4<u>72</u>.

Preface

Today inquiry-response and data entry systems on standard ten-key entry devices are widespread. The ability to handle numerical data quickly and accurately is an invaluable aid in achieving success in a business career and in managing your own personal finances.

Business Calculator Operations will enable you to learn how to solve problems on electronic calculators, both desk-top and hand-held models, and on programmable calculators. In addition you will become familiar with many business procedures, learn how to solve a variety of business problems, and strengthen your general mathematical ability. Since simple, detailed, step-by-step directions are given for learning the basic processes, this book is nearly self-teaching. Learners can work on their own as well as in a class. The instructor is saved from trying to be everywhere at once, and students can progress at their own pace.

The book lends itself to battery, rotation, and lecture-laboratory methods of teaching office machines. Because the problem-solving units involve a review of business mathematics procedures, the text can also be used for combined business machines-business mathematics courses.

The Introduction presents overall techniques for successful machine operation and includes a thorough review of basic mathematics. Unit 1 contains illustrations of typical calculators used in business and explains their use. Unit 2 makes possible job-level proficiency in the touch system for ten-key calculators. Unit 3 clearly presents basic operations.

The reasoning problems in Units 4, 5, 6, and 7 challenge the student by presenting actual business and practical problems. The learner solves problems of percent, simple and compound interest, markon, markup, markdown, payroll, taxes, insurance, banking, installment buying, real estate, stocks and bonds, depreciation, proration, chain discounts, basic statistics, and monetary exchange.

After completing Unit 8 on SI (the metric system), the reader will be able to work comfortably in the commonly used measurements in this system. Unit 9 describes hand-held calculators.

Unit 10 introduces the student to the programmable calculator, which is used extensively for such applications as banking, installment buying, and engineering problems. Answer sheets and the answers to the even-numbered practice problems are provided at the end of the units.

Appendices include a table of decimal equivalents of common fractions, compound interest table, table of chain discount net equivalents, and metric conversion tables. An instructor's manual, which includes examinations, is provided separately.

Contents

Introduction and Basic Mathematics Review

IMPORTANCE OF OFFICE MACHINES AND DATA ENTRY

In our world, where man communicates with computers and computers transmit to each other, data entry and the ability to handle numerical data quickly and accurately make proficiency in office machines important and necessary.

Inquiry-response and data entry systems on standard ten-key entry devices are common in business. Today's electronic calculators are being tied in with data communications systems. Optical font characters from calculator tapes are optically scanned and fed into the computer with no intermediate encapsulating or capturing of the data being necessary.

When companies spend over a billion and a half dollars a year to transmit data at speeds as high as 56,000 bits per second, rapid data entry and rapid handling of numerical data on the part of office workers are needed and expected. Today, when one error entered into a complex data communications system can multiply itself a hundred times in a hundred places, managers and staff more than ever need to be able to handle ten-key and other office equipment with accuracy and expertise.

A learner who uses this text properly will become proficient in the touch system for all types of ten-key machines, will learn to operate electronic calculators (including hand-held ones), will become familiar with the programmable calculator, will learn how to solve many types of business problems, will gain a better understanding of business procedures, and will improve in general mathematical ability.

TECHNIQUES FOR SUCCESSFUL MACHINE OPERATION

To become a skilled office machines operator,

1. Remember that your attitude, as much as your ability, will determine your success in acquiring skill.
2. Read and follow instructions carefully.
3. Cover as much material as you can each time you sit down to practice.
4. Begin immediately to learn ten-key machines by touch. *Never* use incorrect fingering, since this will keep you from acquiring speed.

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5. Develop speed and accuracy in entering numbers and adding on ten-key machines. The majority of the figure work in offices is addition and multiplication.

6. Realize that there is no substitute for deliberate, repetitive practice to develop speed and accuracy in touch operation.

7. Train yourself to look at the entire number in groups rather than as individual digits within the number; for example, read and record $861.73 as 861/73, not as 8, 6, 1, 7, 3.

8. Decide if your answers are reasonable ones. For example, if your problem is to discount a $90 item by 10% and 5%, it is clear that an answer of $769.50 is incorrect. You couldn't be expected to pay *more* than the original cost!

9. Realize that *the decimal point is the most important part of your answer*. There is a world of difference between $55.34 and $5,534.

10. Try for 100 percent accuracy all the time. Never sacrifice accuracy for speed.

11. Sit up straight with both feet on the floor to improve performance and reduce fatigue. Place the calculator at a height and angle comfortable for you.

12. Be sure to write down all of your answers quickly and neatly, with the figures and decimals properly aligned. There is a correlation between careless writing and careless thinking when working with numerical data.

13. Remember to indicate credit balances by including a minus sign in your answer or the abbreviation *Cr* for credit balance. It certainly makes a big difference whether you have $49.69 in the bank or are *overdrawn* at the bank by $49.69.

14. Strive for speed with *accuracy*. However, at times it is desirable to check the figures against the tape. Remove the tape and check each amount against the original data.

15. Care for your machine. Always turn off your calculator when you are finished working. Protect all machines by keeping them covered when not in use. Help prevent *your* calculator from malfunctioning!

BASIC MATHEMATICS PRETEST

A thorough knowledge of basic mathematics is essential for solving the business problems you encounter in both your personal and your professional life. An understanding of basic mathematical concepts and number relationships will enable you to handle your own finances wisely.

In order to assess your fundamental mathematical skill, do the following basic mathematics test *by longhand*. Round off decimal answers to four places. Use the answer sheet at the end of the introduction to record your odd-numbered answers. After you do the even-numbered problems, verify your answers. Then place a check mark after each answer.