through which to profitably view some important ideas that appear
repeated in various studies of mathematics. They ought to be
exploited more frequently.

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SPREADSHEETS IN BUSINESS MATHEMATICS

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With the level of sophistication and the low price of the
available microcomputers, we find them to be a desirable tool in
the instruction of mathematics. The professional software
accessible to the business person and the quality of the business
software also makes software a possibility for use in business
mathematics education. In the case of business mathematics, we
can choose to use the quality business software that is presently
being used in the business world to help us teach our business
math students.

The most popular business software is Lotus 1-2-3. Because
of this popularity, there is a likelihood that your business math
students will use this spreadsheet software. Since we teach the
mathematics that our students will use, perhaps we should also
teach the spreadsheet they will use. That is, teach Business Math
using Lotus 1-2-3 as an aid. Thus, we have maintained our
mathematical integrity and at the same time we have given our
students a head start on using business software. We have
captured the opportunity to demonstrate to our students that
mathematics and business are in fact not mutually exclusive.

In the Columbus State Community College Math Department, we
teach business math topics such as payroll, taxes, trade and cash
discounts, markup, markdown, inventory, simple and compound
interest, annuities, depreciation, descriptive statistics, and a
few other comparable topics. After each of these topics is

taught, the student is assigned a worksheet on that topic using Lotus 1-2-3.

The student is given two class hours of instruction on the use of the computer, the care of diskettes, and some information about Lotus. Their understanding of Lotus includes how to load Lotus 1-2-3, how to load a worksheet, how to move the pointer around the screen, how to change data on the worksheet, how to get a hard copy (using a macro), how to generate a graph of selected data (using the F10 key), and how to exit Lotus (using a macro). By having the worksheet prepared in advance, including the use of the mathematics just taught in class, the student can concentrate on the use of the spreadsheet program as a method of solving business problems.

Each worksheet is on a data diskette that the student purchases at the bookstore. The diskette comes with a manual that contains general instructions on using the computer and Lotus. For each worksheet the student receives instructions on how to use the worksheet, an explanation of the mathematics used on the worksheet, a series of eight to twelve questions to be answered by the student using Lotus, and an answer sheet where the student records his/her answers.

Some typical questions are as follows:

From the payroll worksheet--If you were the employer and you had a rush job that required each employee to have two hours of overtime each day for one week, what would be the overtime cost to you? On the other hand, what if you divided the 60 hours of overtime in the previous problem among the three employees with the lowest hourly rate. What would be the overtime cost?

From the trade discount worksheet--On all items that list for $500 and over, give trade discounts of 20/10/5; on items that list for under $500, give trade discounts of 10/10/5. What is the total discount and average discount rate?

From the same worksheet--Adjust the trade discounts in any way you choose so that the total discount is $1,800.

From the depreciation worksheet--For a cost of $28,000, life of 10 years, and junk value of $4,000, using the declining balance

method find the first year in which the total depreciation exceeds the book value?

From the income tax worksheet--You are considering taking a part-time job that would add $4,000 to your present wages. If you take the job, how much would your taxes go up? How much of the $4,000 would be take home?

The time required to answer all questions on any worksheet varies from student to student. Some may take 30 minutes while others take 90 minutes. All work is done in the computer lab outside of class time, although we will start using class time in the Fall of 1987.

During the seventh week of Winter quarter 1987, 172 students in Business Math were surveyed on the use of the computer and the computer materials. The survey showed that 83% of the students felt that Business Math was more interesting because of the computer usage. Eighty percent (80%) indicated that the computer materials helped them understand how computers are used in business. Fifty-one percent (51%) agreed that the computer usage helped them learn business math. Seventy-nine percent (79%) thought that the computer materials would help them in other courses and 69% thought it would help when they got a job. Finally, 61% said they would like to know more about spreadsheets.

The computer usage has been a success and we will continue to use Lotus 1-2-3 in our Business Math program.

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