**Math 1200 -College Algebra for Business names**

**Introduction to Excel I**

*During this course, we will periodically use Excel to help us analyze data. You should hold on to this tutorial and refer back to it as needed. You can save a file of your work to the desktop and email it to yourself if you want to keep a copy.*

While this assignment will be done working together, it will turned in individually, so I can verify that everyone can create Excel files and turn them in.

0. Housekeeping – Open the “Prologue” Excel worksheet. Put the names of all the group members in the first cell of the top three or four rows of the Excel workbook. Please give both names of each individual. Save the file with the name PrologueName1Name2Name3.xlsx where Name1, Name2, etc are family names of each group member.

1. Doing simple arithmetic

1) The prologue page is set up to help you learn to use Excel to do arithmetic. You need to translate normal math notation to something Excel understands. Do the questions on the sheet. There are things to notice:

Math expressions start with an equals sign

Use +, -, \*, /, ^ for standard operations.

Excel has no implied multiplication. You can’t enter (2)(3). Instead use 2\*3

There is a quirk with the order of operations with – and ^. Try =-3^2.

2) Basic entry Put the following entries in an Excel worksheet. Column B should be evaluated by Excel.

|  |  |  |
| --- | --- | --- |
|  | A | B |
| 1 | 2+3 | =2+3 |
| 2 | 7-4 | =7-4 |
| 3 | 5\*6 | =5\*6 |
| 4 | 21/3 | =21/3 |
| 5 | 9^2 | =9^2 |

3) Using cell references. One of the advantages of a spreadsheet is we can set up the computations and then change an entry and have everything recomputed for us. We want to set up a table showing an account with compound interest. Reproduce the following chart on page 2 of your workbook:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | A | B | C | D |
| 1 | Interest Rate | 0.07 |  |  |
| 2 | Initial Balance | 1000 |  |  |
| 3 |  |  |  |  |
| 4 | Period | Beginning Balance | Interest | End Balance |
| 5 | 1 | =B2 | =B5\*B$1 | =B5+C5 |
| 6 | 2 | =D5 |  |  |

Excel uses references to refer to other cells. The entry in cell B5 says we use the value from cell B2. We will get to the meaning of B$1 in a minute.

4) Show formulas. Normally Excel shows you the resulting value. However, we often want to look at the formulas themselves to make sure they are correct. Under the formula tab, there is a show formula button to see the formulas.

5) Quick fill – If we are to make a table of interest over 20 years, we don’t want to type in all those formulas. We want to use a technique called quick fill. Highlight cells C5 and D5. Then make the cursor hover over the little box on the lower right corner of C5. The shape of the cursor will change. Click and drag down to fill in 20 rows. Similarly, quick fill the first and second columns.

6) Absolute and relative cell references. Look at the formulas in column C. The cell references referring to beginning balance changed with the rows. The cell references referring to the interest rate did not change. The $ made that reference an absolute reference, rather than a relative reference. We can make either the row or column, or both absolute.

7) Doing multiple similar problems and thinking in Excel. We really want to use Excel when we are doing several similar problems. One of the homework exercises that a lot of students asked about in previous semesters was the comparative cost of two finance plans for a car. (Example 1.2 on page 22 and exercise 17 on page 27.) We want to set up page three of our worksheet to do that problem. We want to compute   
The equation is ling enough that most students typed something wrong when they used their calculators. (Typically, parentheses are misplaced.) Since we want to be able to follow our work, we will label everything. We also do each step on separate lines. (Electrons are cheap.) Reproduce the following table;

|  |  |  |
| --- | --- | --- |
|  | A | B |
| 1 | Principal P | 15000 |
| 2 | APR | 0.035 |
| 3 | Monthly Rate r | =B2/12 |
| 4 | 1+r | =1+B3 |
| 5 | Months m | 48 |
| 6 | numerator | =B1\*B3\*(B4^B5) |
| 7 | denominator | =(B4^B5-1) |
| 8 | Monthly payment M | =B6/B7 |
| 9 | Total Payment | =B5\*B8 |

Next, we want to quick fill from column B to column C. We then change the values of P and APR to 13000 and 0.0885 and get new monthly and total payments. We can add put differences in column D.

8) Cell ranges: Some commands, like sum and average, use a range of cells. A colon between two references uses all the cells in between. On a fourth page, put entries in cells A1 through B4 and add them up with =SUM(A1:B4)

9) Getting help (Google is your friend, and there is a u-tube video for anything.) The students in this class will be using multiple versions of Excel on several different operating systems. When in doubt, ask Google. I find the instructions there are better than Excel help.

8) Document your work. Things to remember:

You need to tell me which number on the page is the answer to my question. Otherwise I get to pick any number on the page and count it as your answer. Use text boxes.

Clear work gets more partial credit.

Business rules: If the boss is confused, you are wrong.

Words as variable names are easier to understand than simple letters.

Add a text box to each page of your worksheet explaining what is done on that page.

When you finish your worksheet, make sure to share copies with the group and then submit it on blackboard. The name of your file should include your last name and what assignment is involved. I would name this worksheet ExcelI-May.xlsx