



Excel Functions & Tables

Fall 2012

Review of Functions

- Quick Mathematics Review

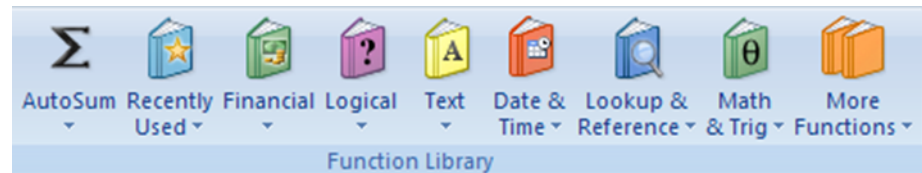
- As it turns out, some of the most important mathematics for this course revolves around the concepts of exponential and logarithmic functions.
- Defn: function - is a relation in which each element in the domain is associated with only one element in the range

What can you say about the function $f(x)=x+5$

What are a couple of more simple functions.

Built-in Functions

- Functions are special routines provided by Excel to do simple and complex calculations.
- Click on the Formulas Tab to see the following:



- Click on the Math & Trig icon and you will see all of the Excel functions for this category

Excel Function Syntax

- The basic syntax for an Excel function is carried over from algebra and includes the following:
 - The function name
 - A left parenthesis
 - A list of arguments where each argument is separated by a comma
 - A right parenthesis
- The INT function rounds a number down to the nearest integer

What is the value of =INT(3.75)

What is the value of =INT(-3.75)

Problem 3.1

-
- Students in a Chemistry class were given an exam and were then tested monthly with an equivalent exam. The average score was given by $f(x)=80-17\log_{10}(t+1), 0 \leq t \leq 12$, where t is the time in months.
 - Design a worksheet called Problem 3.1, using a named variable **month**, that allows the user the ability to enter a time t in months and calculates the average exam score.
 - Answer each of the following questions in an Excel comment placed in cell D1
 1. What was the average score on the original exam?
 2. What was the average score after 4 months?
 3. What was the average score after 10 months?

More on Cell References

- Cell references can be relative, absolute, or a combination of both relative & absolute
- Relative reference - refer to cell references in formulas in relation to the cell that contains the formula. e.g. =A2+1
- Absolute reference - refer to cells in their absolute or fixed position. e.g. =\$A\$2+1
- Combination - either the row is absolute and the column is relative or the row is relative and the column is absolute. e.g. =\$A2+1 or =A\$2+1

Filling Cells

- Many times when creating an Excel worksheet, you want to get some pattern going so you can fill down, right, or both down and right.
- Excel adjusts cell references during the fill based on the reference type.

A screenshot of an Excel spreadsheet. The active cell is A3, and the formula bar shows $f_x = A2+1$. The spreadsheet has columns A, B, C, and D, and rows 1 through 6. Cell A1 contains the text "Year". Cell A2 contains the number "1". Cells A3 through A6 are highlighted in blue, indicating they have been filled. The values in these cells are 2, 3, 4, and 5, respectively, showing that the formula from A2 was copied down with relative references.

	A	B	C	D
1	Year			
2	1			
3	2			
4	3			
5	4			
6	5			

A screenshot of an Excel spreadsheet. The active cell is A3, and the formula bar shows $f_x = \$A\$2+1$. The spreadsheet has columns A, B, C, and D, and rows 1 through 6. Cell A1 contains the text "Year". Cell A2 contains the number "1". Cells A3 through A6 are highlighted in blue, indicating they have been filled. The values in these cells are 2, 2, 2, and 2, respectively, showing that the formula from A2 was copied down with absolute references.

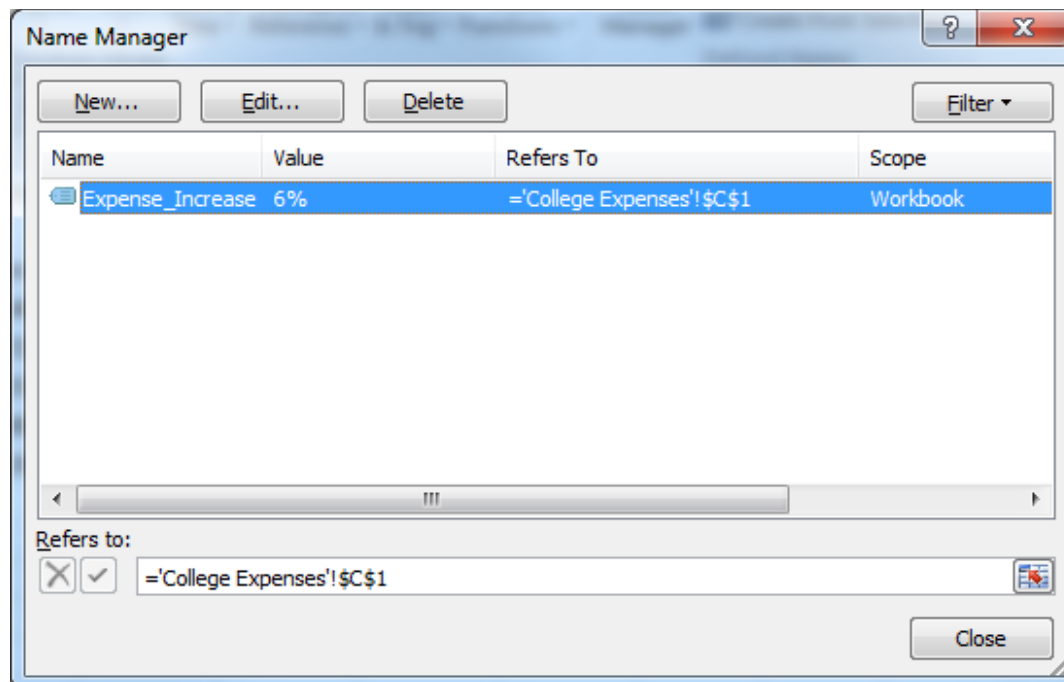
	A	B	C	D
1	Year			
2	1			
3	2			
4	2			
5	2			
6	2			

Problem 3.2

1. Students in a Chemistry class were given an exam and were then tested monthly with an equivalent exam. The average score was given by $f(x)=80-17\log_{10}(t+1)$, $0 \leq t < 12$, where t is the time in months.
2. Design a worksheet that shows the average score for all values of t (0 to 11)

Named Cell Reference

- What kind of cell reference is a named cell?



Problem 3.3

An interesting Web site is www.worldometers.info

Using the population of the world today and the present growth rate of 1.15% per year, design a worksheet that shows the population for each of the next 25 years.

Let's design and then implement

Problem 3.4

1. The university you are planning on attending after your senior year of High School has given you the following average expenses for a typical student.

	A	B	C	D	E
1	Category	Freshmen	Sophomore	Junior	Senior
2	Clothes	\$540.00			
3	Entertainment	\$735.00			
4	Miscellaneous	\$355.00			
5	Room & Board	\$3,480.00			
6	Tuition & Books	\$5,150.00			

2. Assuming a 6% increase in all expenses, finish the above worksheet showing expenses for each of your four years in college

Problem 3.5 Better Design

- How would we change the previous worksheet from 6% to 4%?
- A better design

	A	B	C	D	E	F	G	H
1	Category	Freshmen	Sophomore	Junior	Senior	Expense Increase		
2	Clothes	\$540.00					6%	
3	Entertainment	\$735.00						
4	Miscellaneous	\$355.00						
5	Room & Board	\$3,480.00						
6	Tuition & Books	\$5,150.00						