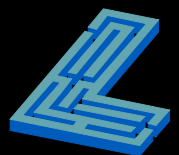


Microsoft Office 2007: Essentials, Revised Edition



Lesson 14: Working with Formulas and Functions

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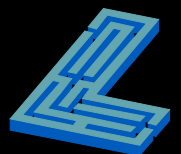
Formulas and Functions

- **Formula**

- ▲ Simply a math problem done in Excel

- **Function**

- ▲ Prewritten formula that helps simplify complex procedures (for numbers and text)



AutoSum

- Automatically sums a column or row of numbers

	A	B	C	D
1	Big Bear Mountain Inn			
2	<i>First Quarter Commissions</i>			
3				
4		Nights Booked		
5	<u>Booking Agent</u>	<u>January</u>	<u>February</u>	<u>March</u>
6	Betty's Better Travel	250	486	274
7	Mountain Travel Agency	342	276	299
8	Rent Online 4 Less	74	149	101
9	Sea to Mountain Travel	113	109	88
10	Skiingtrips.com	337	265	124
11	Total	=SUM(B6:B10)		
12	Average	SUM(number1, [number2], ...)		

In this example, cell B11 was active and then the AutoSum command was issued; Excel will propose to add the numbers above the cell



Status Bar Functions and Customization

- Right-click on the status bar to display a context menu
 - ▲ Customize what you see on the status bar

The screenshot shows an Excel spreadsheet with a table titled "Nights Booked". The table has columns for January, February, March, and 1st Qtr Total. The data is as follows:

	January	February	March	1st Qtr Total
6	250	486	274	1010
7	342	276	299	917
8	74	149	101	324
9	113	109	88	310
10	337	265	124	726
11	1116	1285	886	3287
12	223.2	257	177.2	657.4
13	342	486	299	1010
14	74	109	88	310

The status bar at the bottom of the spreadsheet displays: Average: 219.1333333 Count: 15 Sum: 3287. A context menu titled "Customize Status Bar" is open, showing various options with checkboxes:

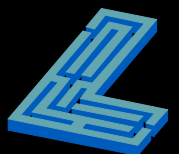
- Scroll Lock Off
- Fixed Decimal Off
- Qvertype Mode
- End Mode
- Macro Recording Not Recording
- Selection Mode
- Page Number
- Average 219.1333333
- Count 15
- Numerical Count
- Minimum
- Maximum
- Sum 3287
- View Shortcuts
- Zoom 100%
- Zoom Slider

Notice the functions displayed on the status bar



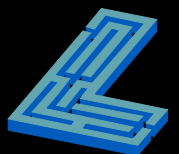
Creating Formulas

- Start with “ = ”
- Use cell and range references when possible
- Arithmetic operators in formulas:
 - ▲ Addition: +
 - ▲ Subtraction: -
 - ▲ Multiplication: *
 - ▲ Division: /
 - ▲ Exponentiation: ^
 - ▲ Percent: %
 - ▲ Grouping: ()



Cell and Range References

- **Advantages:**
- **When references are used, formulas can be copied to other cells**
- **Since a reference refers to a cell or a range of cells, the formula results are automatically recalculated when the data is changed in the referenced cell(s)**



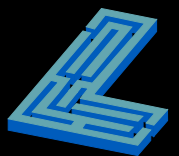
Please Excuse My Dear Aunt Sally

- **Determines the order of operations in formulas:**

- ▲ **P** – Parentheses
- ▲ **E** – Exponents
- ▲ **M** – Multiplication
- ▲ **D** – Division
- ▲ **A** – Addition
- ▲ **S** – Subtraction



*Remember the order:
“Please excuse my dear Aunt Sally.”*



Using Cell References in Formulas

■ Relative

- ▲ When you copy a formula, the cell references update automatically and refer to new cells relative to the new formula cell

■ Absolute

- ▲ Absolute references always refer to the same cell, regardless of which cell the formula is moved or copied to

C	D	E
Big Bear Mountain Inn		
<i>Monthly Projected Profits</i>		
=125*30	=150*30	=175*30
=C4/\$B\$19	=D4/\$B\$19	=E4/\$B\$19
=C4*\$B\$17	=D4*\$B\$17	=E4*\$B\$17

The examples displayed here show both relative and absolute cell references



TIP *Absolute cell references are denoted with \$ signs.*



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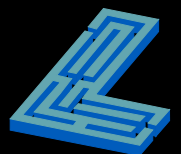
Modifying Formulas

- Can modify in one of two places:
 - ▲ Formula Bar
 - ▲ In cell

	A	B
1		Big B
2		<i>Mor</i>
3		
4	Projected Nights Booked	3,000
5	Occupancy Rate	50%
6	Revenue	=B4*B17
7	Operating Cost	260,000
8	Advertising	3,500
9	Commissions	14,632
10	Office Expenses	5,000
11		
12	Total Costs	283,132
13	Gross Profit	(16,132)
14	Net Profit	\$ (12,099)
15	Gross Profit vs. Revenue	-6%
16		
17	Average Room Rate	\$ 89

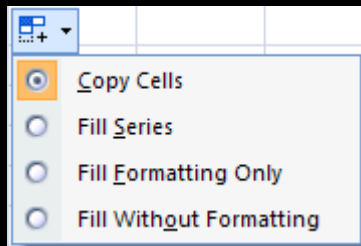
Notice the insertion point in the Formula Bar; the active cell (B6) is being edited

Referenced cells are outlined in various colors



Copying Formulas

- Copy and Paste
 - ▲ OR
- AutoFill



If you use the fill handle, you can click the AutoFill Options button to choose to copy the information from the source to destination cells

Displaying Formulas

- Choose to display formulas, rather than the resulting values, in cells

	A	B	C	D	E	F
4	Projected Nights Booked	=100*30	=125*30	=150*30	=175*30	=190*30
5	Occupancy Rate	=B4/\$B\$19	=C4/\$B\$19	=D4/\$B\$19	=E4/\$B\$19	=F4/\$B\$19
6	Revenue	=B4*\$B\$17	=C4*\$B\$17	=D4*\$B\$17	=E4*\$B\$17	=F4*\$B\$17
7	Operating Cost	=\$B\$18+(\$F\$19*B4)	=\$B\$18+(\$F\$19*C4)	=\$B\$18+(\$F\$19*D4)	=\$B\$18+(\$F\$19*E4)	=\$B\$18+(\$F\$19*F4)
8	Advertising	3500	3500	3500	3500	3500
9	Commissions	=1096*\$B\$17*\$F\$17	=1096*\$B\$17*\$F\$17	=1096*\$B\$17*\$F\$17	=1096*\$B\$17*\$F\$17	=1096*\$B\$17*\$F\$17
10	Office Expenses	5000	5000	5000	5000	5000
11						
12	Total Costs	=SUM(B7:B10)	=SUM(C7:C10)	=SUM(D7:D10)	=SUM(E7:E10)	=SUM(F7:F10)
13	Gross Profit	=B6-B12	=C6-C12	=D6-D12	=E6-E12	=F6-F12
14	Net Profit	=B13*(1-\$F\$18)	=C13*(1-\$F\$18)	=D13*(1-\$F\$18)	=E13*(1-\$F\$18)	=F13*(1-\$F\$18)
15	Gross Profit vs. Revenue	=B13/B6	=C13/C6	=D13/D6	=E13/E6	=F13/F6
16						
17	Average Room Rate	89		Commission Rate		0.15
18	Monthly Fixed Operating Cost	200000		Tax Rate		0.25
19	Nights Per Month	=200*30		Variable Cost per Night		20



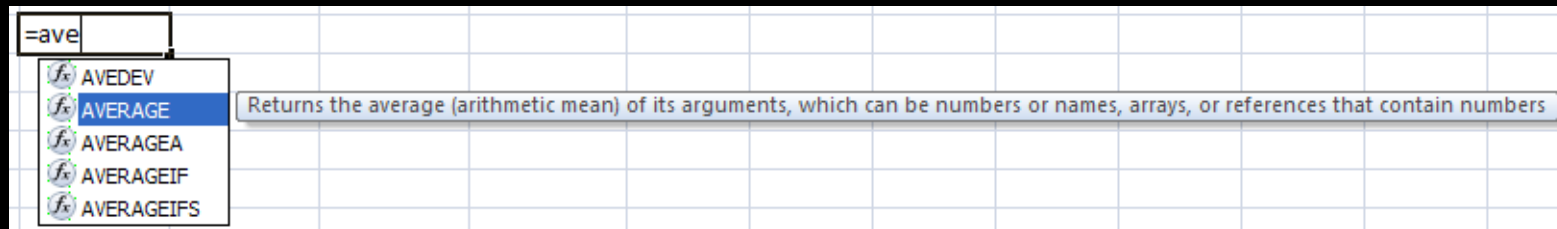
Show Formulas

Use the Show Formulas button to toggle between displaying formulas and values



Formula AutoComplete

- Jumps into action once you type “ = ” and the beginning letters of a function in a cell

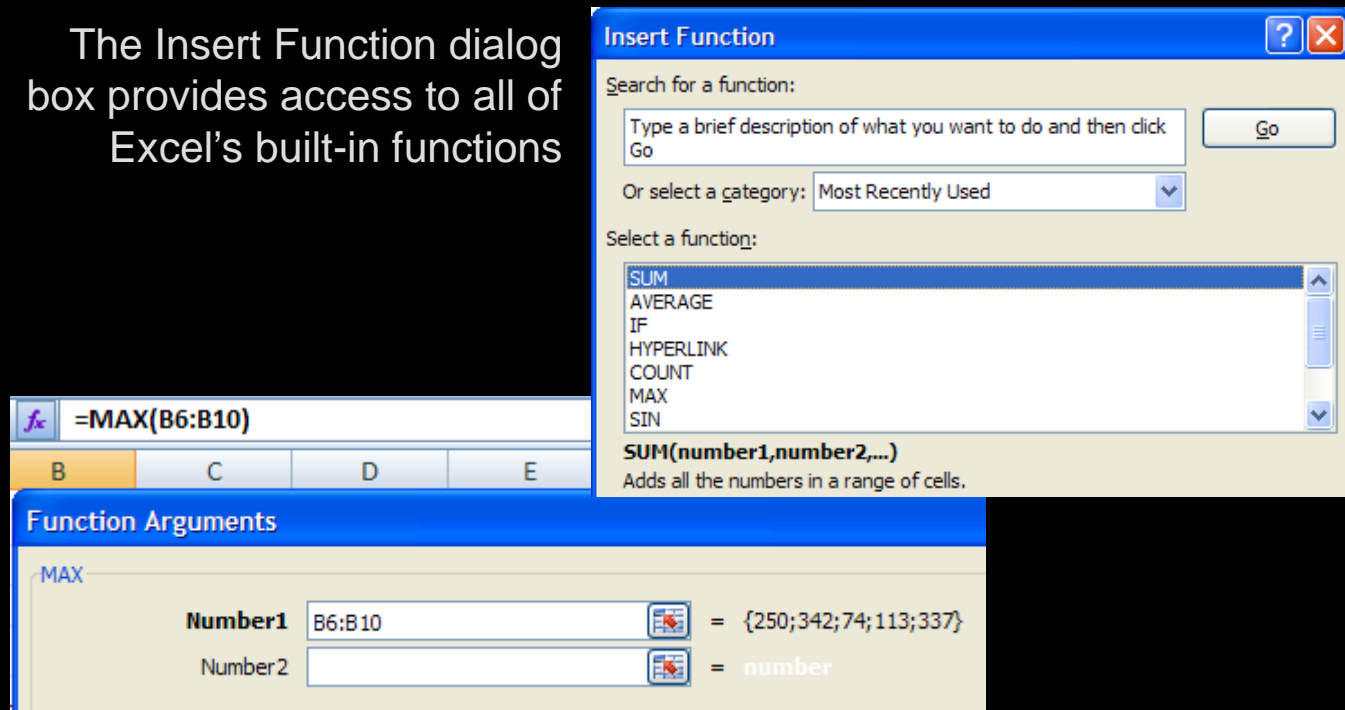


You can choose from the functions suggested by Formula AutoComplete

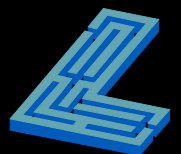
The Function Wizard

- Clicking the Function Wizard button displays the Insert Function dialog box

The Insert Function dialog box provides access to all of Excel's built-in functions



The Function Arguments dialog box allows you to determine the cell or range of cells to be included in the function

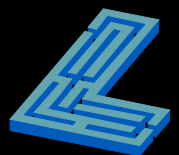


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