

Calculations and Functions

IN THIS CHAPTER

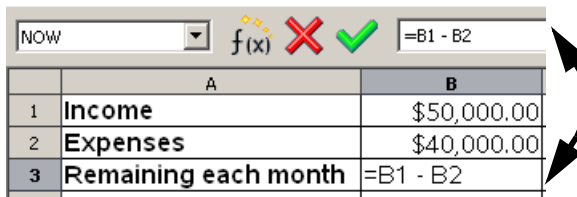
- Getting Started With Calculations *page 370*
- Regular Calculations..... *page 375*
- Functions..... *page 378*
- Using Subtotals..... *page 384*

Getting Started With Calculations

It's pretty simple; just a few simple rules. And if you know Excel, it's very simple.

Where to Type

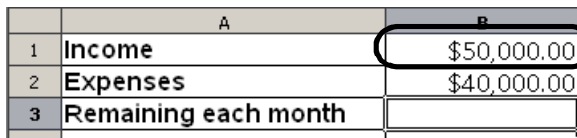
You can click in the cell where you want the calculation results to show up, and just type there. What you're typing will show up in the formula toolbar and in the cell where you clicked.



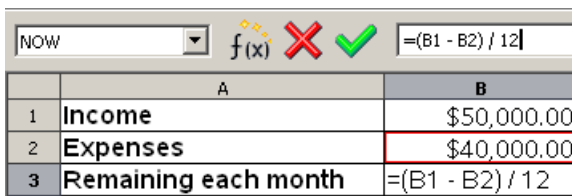
When you're done, press Enter, click the green check mark, or use the arrow keys on the keyboard to go to another cell.

Basic Syntax

To refer to a number, just type its cell reference, which is the column and the row. If you want to put the 50,000 figure from this example in a calculation, just type **B1**. You can type the cell reference, or just click on the cell that you want to refer to and the cell reference will appear in your calculation.



To type a calculation, start with an equals sign, then type the calculation using cell references and standard math symbols. Use parentheses when necessary to make the calculation correct.



Start with a = and then just type the formula using cell references and standard operators:

- Addition +
- Subtraction -
- Multiplication *
- Division /

Changing a Calculation

If you want to change the calculation, click in the cell where it is. Then do whichever of the following seems the most appealing:

- ◆ Click in the formula toolbar and make the changes there

	A	B
1	Income	\$50,000.00
2	Expenses	\$40,000.00
3	Remaining each month	=(B1-B2)/12

- ◆ Or double-click in that same cell and retype the formula there—it's pretty much the same, you're just typing in a different spot

	A	B
1	Income	\$50,000.00
2	Expenses	\$40,000.00
3	Remaining each month	=(B1-B2)/12

- ◆ Or double-click in that same cell and drag the color-coded boxes to different cells. This doesn't change the formula, just the cells in the formula.

	A	B
1	Income	\$50,000.00
2	Expenses	\$40,000.00
3	Remaining each month	=B1-B2
4		
5		
6	Real income	\$40,000.00

Repeating Calculations for a Row or Column

Let's say you've got this spreadsheet. You need to multiply everything in the Wholesale Price column by 1.8 and put the result in the Retail Price column.

5	Title	Wholesale Price	Retail Price
6	For Love of Flight	\$10.00	=D6* 1.8
7	Up in the Air	\$10.00	
8	OpenOffice and Me: The Untold Story	\$14.00	
9	Lila, the Lilies, and Lyle	\$19.00	
10	Mark Johnson Owes Me Money	\$19.00	
11	Java Jive: The Scandal Behind the Programming Language	\$6.00	
12	Head First Perl	\$22.00	
13	The Secret Life of Variables	\$6.00	
14	Head First Java	\$10.00	

You could retype or copy and paste to get that formula into all the other cells in the Retail Price column. However, the quickest way to get exactly what you want is to just drag the formula down. You're looking for the tiny square handle in the lower right corner of the calculation cell.

Wholesale Price	Retail Price
\$10.00	\$18.00
\$10.00	

The drag the handle down as far as you want it.

Wholesale Price	Retail Price
\$10.00	\$18.00
\$10.00	
\$14.00	
\$19.00	
\$19.00	

Here's what the results look like, with the correct calculation in each cell.

5	Title	Wholesale Price	Retail Price
6	For Love of Flight	\$10.00	\$18.00
7	Up in the Air	\$10.00	\$18.00
8	OpenOffice and Me: The Untold Story	\$14.00	\$25.20
9	Lila, the Lilies, and Lyle	\$19.00	\$34.20
10	Mark Johnson Owes Me Money	\$19.00	\$34.20
11	Java Jive: The Scandal Behind the Programming Language	\$6.00	\$10.80
12	Head First Perl	\$22.00	\$39.60
13	The Secret Life of Variables	\$6.00	\$10.80
14	Head First Java	\$10.00	=D14 * 1.8

Absolute and Relative Cell References

When you click in cell B2 and type the reference =A1, you're not really referring to A1. You're referring to "the cell one to the left of this cell." You'll see this if you set this up, and then copy and paste that formula into different cells.

	A	B	C
1		Sales	Sales Goals for Next Year
2	Books	\$340,998.00	=B2 * 1.3
3	Coffee	\$560,500.00	
4	Cups and art		

	A	B	C
1		Sales	Sales Goals for Next Year
2	Books	\$340,998.00	\$443,297.40
3	Coffee	\$560,500.00	\$728,650.00
4	Cups and art	\$1,209,887.00	=B4 * 1.3

Cell references are relative by default. This is usually what you want.

However, what if you don't want that cell reference to move—what if you always want a particular cell referred to? In this example, the amounts are multiplied one

number at the right. If you copy and paste the formulas down in this example, then you multiply zero in the second and third cells.

	A	B	C	D
1		Sales	Sales Goals for Next Year	Percent Increase
2	Books	\$340,998.00	=B2 * D2	130%
3	Coffee	\$560,500.00		
4	Cups and art	\$1,209,887.00		

	A	B	C	D
1		Sales	Sales Goals for Next Year	Percent Increase
2	Books	\$340,998.00	\$443,297.40	130%
3	Coffee	\$560,500.00	\$0.00	
4	Cups and art	\$1,209,887.00	=B4 * D4	

What you would do in this situation is to refer to cell D2 with an *absolute reference* so that it always stays the same.

Note – You can read more about referring to cells in different sheets and spreadsheets in *Referencing Other Cells and Spreadsheets* on page 365.

To do this, just type **\$D\$2**, with a \$ in front of the column and the row. (To make only the row or only column absolute, just put the \$ in front of one of them.)

	A	B	C	D
1		Sales	Sales Goals for Next Year	Percent Increase
2	Books	\$340,998.00	\$443,297.40	130%
3	Coffee	\$560,500.00	\$728,650.00	
4	Cups and art	\$1,209,887.00	=B4 * \$D\$2	

Relative reference to the cells in column B.

Absolute reference to the cell D2.

Regular Calculations

If you want to just add or subtract (or multiply or divide), here are some basics.

Simple Calculations

To do math in OpenOffice.org, you just use + - / and * for plus, minus, divide, and multiply.

- 1 Open the spreadsheet.
- 2 Click in the cell where you want the calculation results to appear.

	A	B	C	D
36	Literature	3.00%	\$1,747	
37	Geography, Travel	3.00%	\$1,747	
38	World History	5.00%	\$2,912	
39	American History, World War II	5.00%	\$2,912	
40	State Histories, South American, Australian History	4.00%	\$2,329	
41	Biographies	2.00%	\$1,165	
42	Totals	100.00%		
43				
44				
45	History Totals			
46				

- 3 Type the formula in the cell. This example would add the three reference cell contents together.

$$=(C38 + C39 + C40)$$

The parentheses and spaces are optional, but it makes the formula easier to read. In another example if you had a more complex calculation, the parentheses would be more important.

$$=(B7 + B8 - B9) - ((12 * B3) + B4)$$

4 Press Return when you're done. The total will appear.

	A	B	C
36	Literature	3.00%	\$1,747
37	Geography, Travel	3.00%	\$1,747
38	World History	5.00%	\$2,912
39	American History, World War II	5.00%	\$2,912
40	State Histories, South American, Australian History	4.00%	\$2,329
41	Biographies	2.00%	\$1,165
42	Totals	100.00%	\$8,153
43			
44			
45	History Totals	\$8,153	

Quick Sum

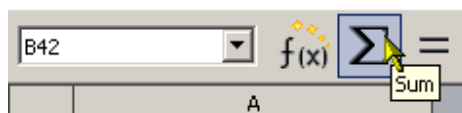
There's a nice shortcut for adding a column or row of consecutive numbers.

- 1 Open the spreadsheet.
- 2 Go to the cell below, or to the right of, a column or row to add up.

Note – You don't select the column or row to add up; you click at the first empty cell below or next to it.

38	World History	5.00%	\$2,912
39	American History, World War II	5.00%	\$2,912
40	State Histories, South American, Australian History	4.00%	\$2,329
41	Biographies	2.00%	\$1,165
42	Totals		
43			
44			

3 Click the Sum icon in the formula bar.



- A proposed formula will appear at the top and you'll see a blue box around the cells that it thinks you want to sum (the blue box encircles all the adjoining numeric cells in the column).

AVERAGE				
f(x) X ✓ =SUM(B4:B41)				
	A	B	C	D
36	Literature	3.00%	\$1,747	
37	Geography, Travel	3.00%	\$1,747	
38	World History	5.00%	\$2,912	
39	American History, World War II	5.00%	\$2,912	
40	State Histories, South American, Australian History	4.00%	\$2,329	
41	Biographies	2.00%	\$1,165	
42	Totals	=SUM(B4:B41)		
43				

- It's usually what you want, so press Enter. The total will appear.
- Press Return or an arrow key to get out of the cell. **Don't click in another cell.**

The quick sum feature will add up consecutive numbers. Here are two examples of what it will put into the formula automatically. The autosum will go up to the first missing row, but it will start at the first number it finds.

NOW			
f(x) X ✓ =SUM(B35:B38)			
	A	B	C
32	Literature	\$1,747	
33	Geography, Travel	\$1,747	
34			
35	Transpersonal Breathing and Storytelling	\$344	
36	American History, World War II	\$2,912	
37	State Histories, South American, Australian History	\$1,165	
38	Biographies	\$1,747	
39	Totals	=SUM(B35:B38)	

SUM			
f(x) X ✓ =SUM(B34:B38)			
	A	B	C
28	Art and Art History,	\$2,912	
29	Drawing and Crafts	\$2,329	
30	Music	\$2,329	
31	Recreation, Sports	\$1,747	
32			
33			
34	Geography, Travel	\$1,747	
35	Transpersonal Breathing and Storytelling	\$344	
36	American History, World War II	\$2,912	
37			
38			
39	Totals	=SUM(B34:B38)	

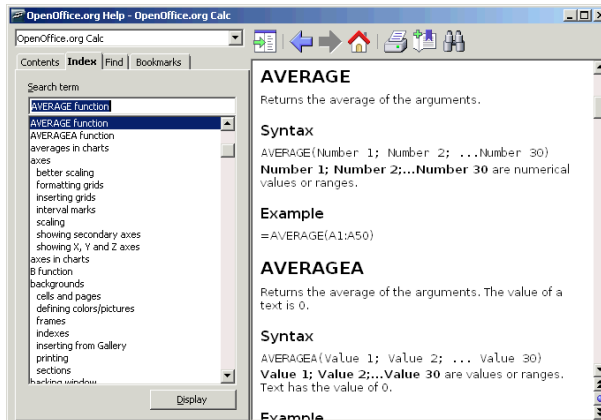
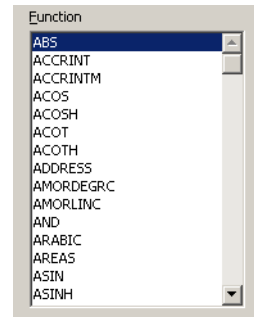
Functions

Functions are preset calculations like Average, Internal Rate of Return, when Easter falls for a given year, etc. There are a zillion in Calc.

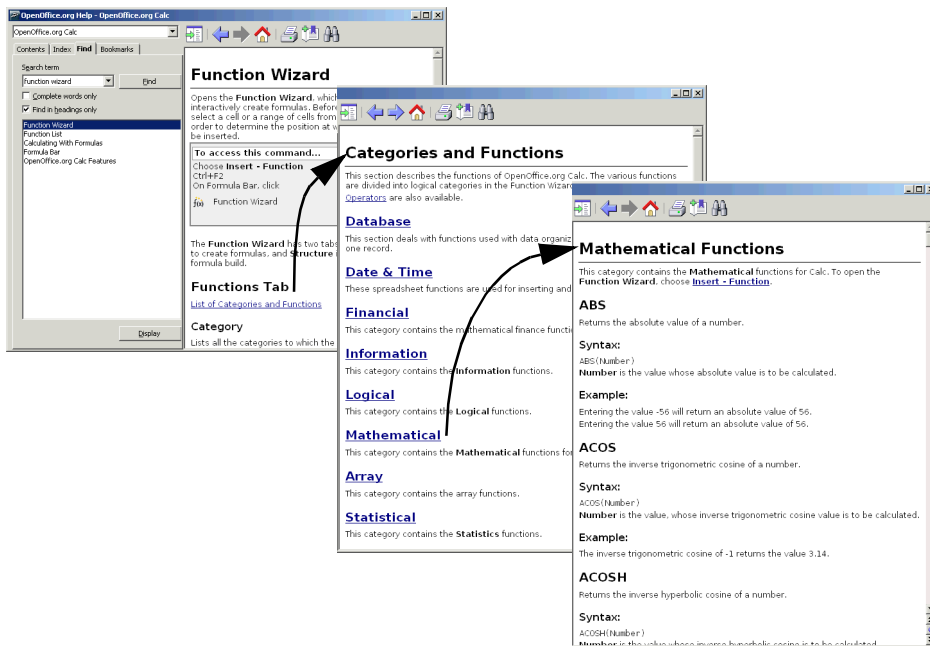
I'm not covering all of them. Luckily, I don't really need to since the online help has good definitions and examples of each, and the Function Wizard walks you through how to use each one.

Using the Help

The simplest approach is to use the help (press F1), look up your function, and find the syntax.



One way to find all the functions and the help for them is to press F1, type **Function Wizard** in the Find screen, then click the List of **Categories and Functions** link. You'll find the Categories and Functions window, where you can click on a category and get to syntax and examples for all the functions in that category.



Typing a Function Manually

Once you've found the syntax and an example, just type the function. Start with = then use the function name, then typically use parentheses and cell references as necessary.

The syntax for the average of the cells in B12, B42, and B90, for instance, is:

=AVERAGE(B12;B42;B90)

The syntax for the average of the cells in the *range* B12 through B90, however, is:

=AVERAGE(B12:B90)

You generally separate ranges of cells with a semicolon, and individual cells with semicolons.

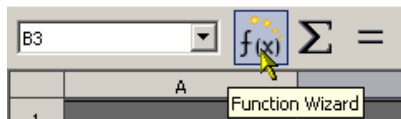
If you'd like more help to get started, use the function wizard.

Using the Function Wizard

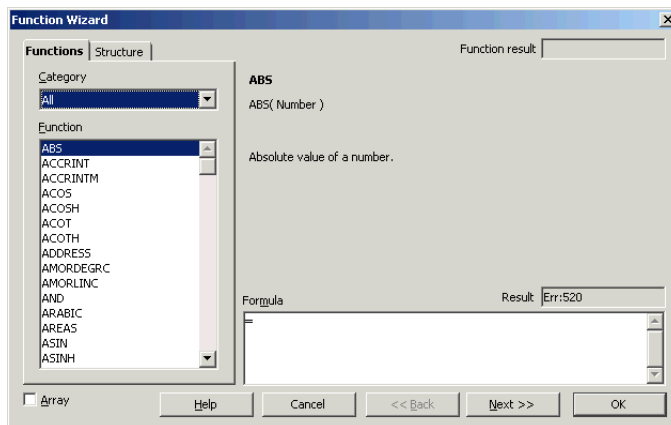
- 1 Open the spreadsheet.
- 2 Click where you want the calculation to show up.

	A	B	C	D	E
4	Authors and Books This Week: January 20-27				
5					
6		Author	Title	Weekly Sales	Price
7		Simon Roberts	For Love of Flight	224	\$19.99
8			Up in the Air	554	\$14.99
9		Floyd Jones	OpenOffice and Me: The Untold Story	341	\$39.99
10			Lila, the Lilies, and Lyle	765	\$35.00
11			Mark Johnson Owes Me Money	665	\$20.00
12			Java Jive: The Scandal Behind the Programming Language	211	\$79.99
13		Kathy Sierra	Head First Perl	122	\$19.99
14			The Secret Life of Variables	344	\$24.00
15			Head First Java	445	\$34.99
16					
17				Average price	
18					
19					

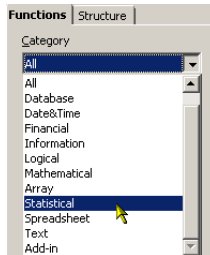
- 3 Click the Function Wizard icon on the toolbar.



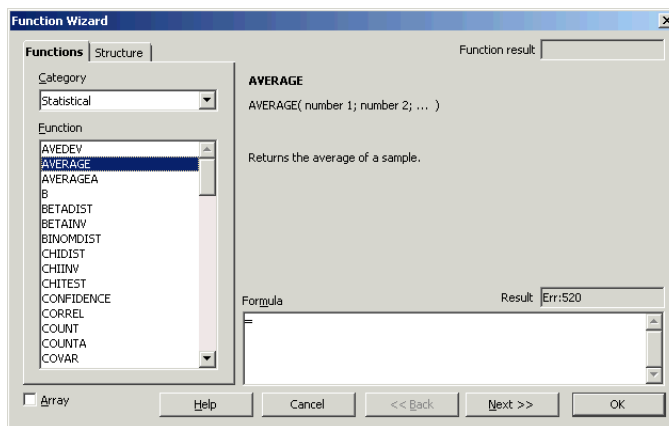
- 4 The Function Wizard window appears.



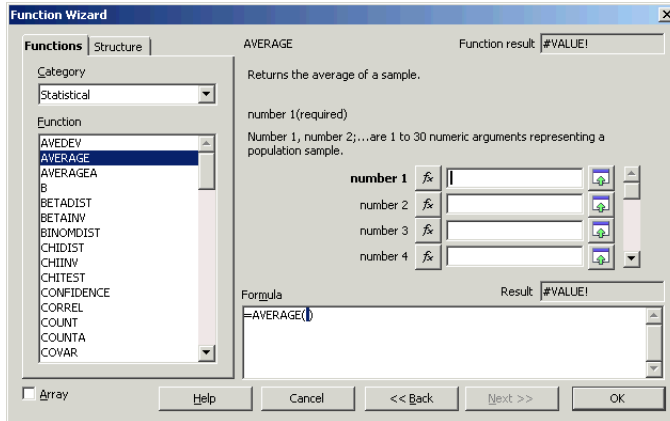
- Find the category your function is in, then select the function, or just scroll through the whole list alphabetically.



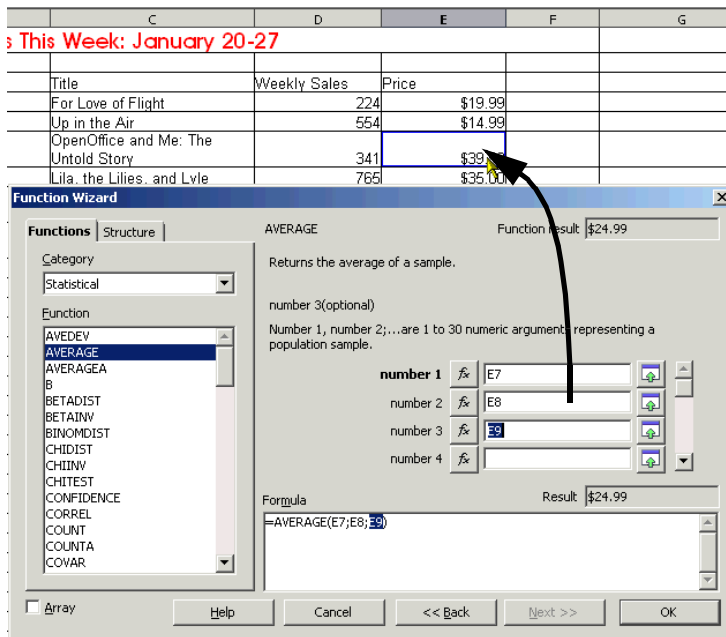
- Select the function. Read the information about the function. If you're ready you can just type everything here in the Formula field and the preview result will be displayed in the Result field.



- 7 To get more help, double-click the function name to make the fields appear, and a little extra help in the function entry field below

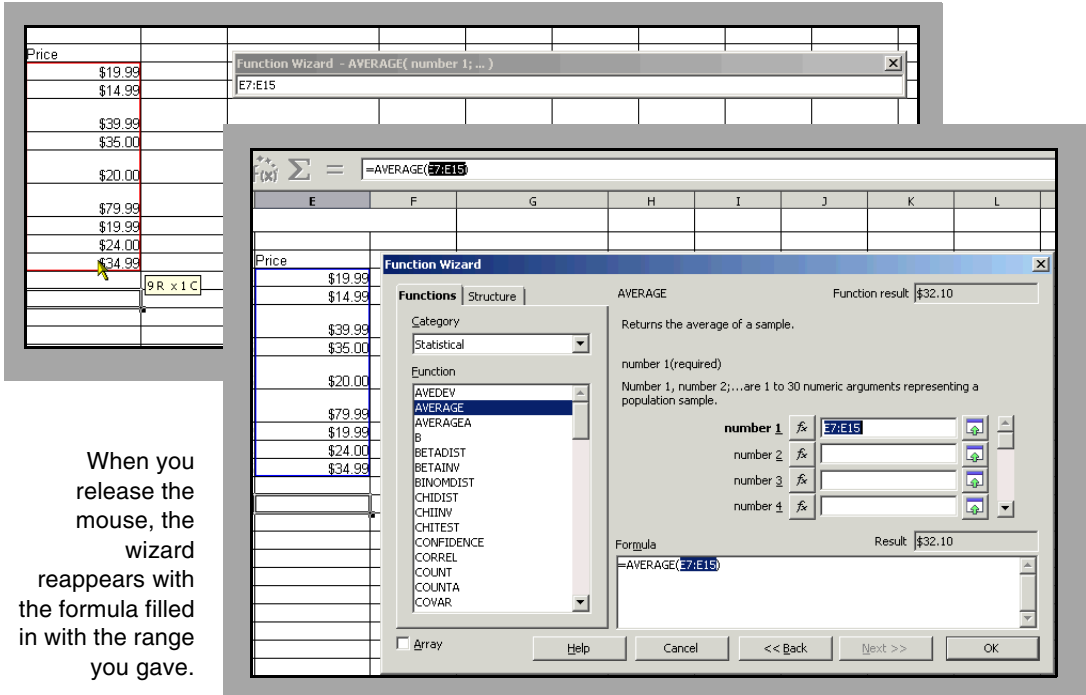


- 8 You have a few options at this point for entering the cells in the function.
 - ◆ You can just type, typing the appropriate cell reference in each of the fields. Scroll down to see more. Or you can just click in the cell in the spreadsheet, instead of typing.



- Or if you can apply the function to a range, you can just click in the top cell in the wizard and drag your mouse in the range in the spreadsheet itself. The wizard window will minimize while you're dragging, then reappear when you're done.

Drag around the cells in the range; the wizard window is minimized



When you release the mouse, the wizard reappears with the formula filled in with the range you gave.

- When you've filled in your formula, just click OK. The average will appear in the spreadsheet. Double-click the cell if you want to verify that the formula and range are correct, visually.

Weekly Sales	Price
224	\$19.99
554	\$14.99
341	\$39.99
765	\$35.00
665	\$20.00
211	\$79.99
122	\$19.99
344	\$24.00
445	\$34.99

Average price	\$32.10
---------------	---------

➔

Average price	=AVERAGE(E7:E15)
---------------	------------------

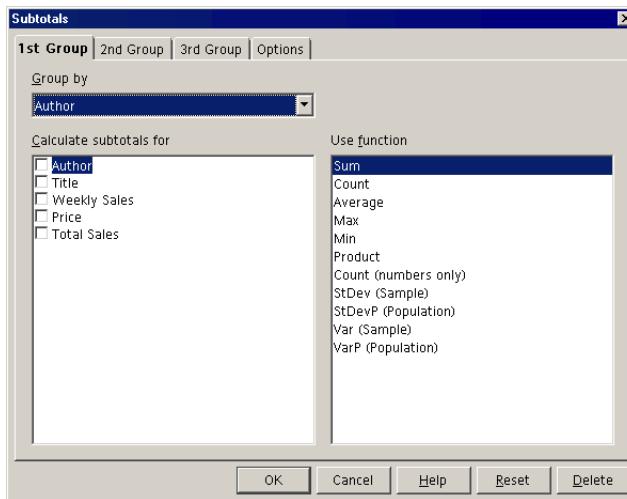
Using Subtotals

Let’s say you’ve got a list of groups of items, like book sales sorted by author, and you want to get subtotals for the books sold for each author. You could insert rows and do some additions but it’s quicker, especially when you add more authors and books later, to use the Subtotals function.

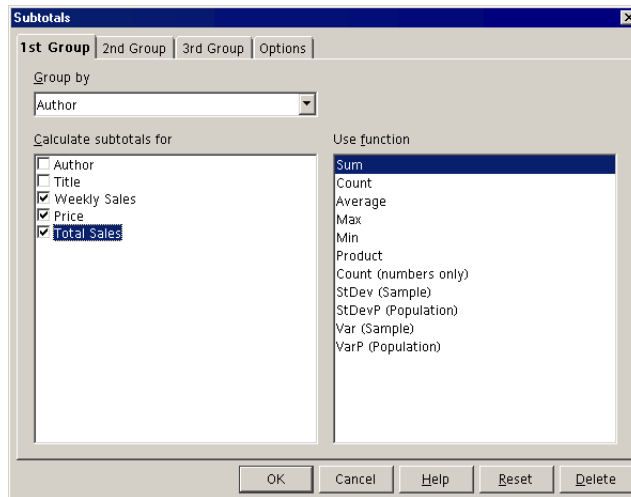
- 1 Open the spreadsheet.
- 2 Select the data and the headings for the data you want subtotals for.

	C	D	E	F	G
4		Authors and Books This Week			
5					
6	Author	Title	Weekly Sales	Price	Total Sales
7	Simon Roberts	For Love of Flight	224	\$19.99	\$4,477.76
8		Up in the Air	554	\$14.99	\$8,304.46
9	Floyd Jones	OpenOffice and Me: The Untold Story	341	\$39.99	\$13,636.59
10		Lila, the Lilies, and Lyle	765	\$35.00	\$26,775.00
11		Mark Johnson Owes Me Money	665	\$20.00	\$13,300.00
12		Java Jive: The Scandal Behind the Programming Language	211	\$79.99	\$16,877.89
13	Kathy Sierra	Head First Perl	122	\$19.99	\$2,438.78
14		The Secret Life of Variables	344	\$24.00	\$8,256.00
15		Head First Java	445	\$34.99	\$15,570.55
16					

- 3 Choose Data > Subtotals. The Subtotals window will appear.



- 4 Select the items you want subtotals for.



- 5 Click the Options tab and *unmark* the Pre-Sort Area According to Groups option. Unmarking this option means the data stays as it is and doesn't get rearranged.

