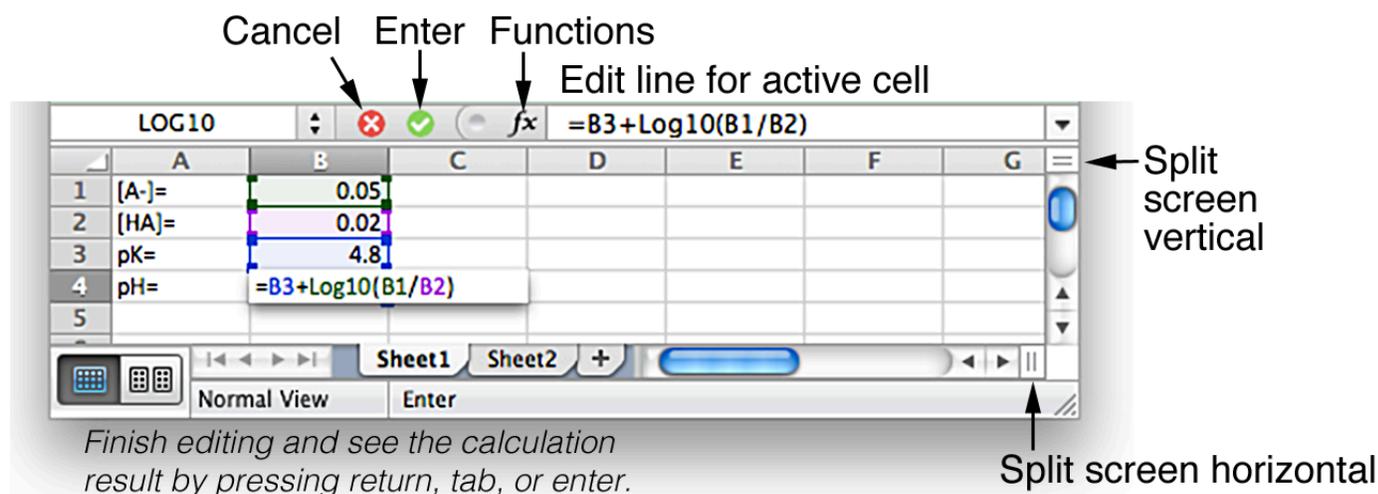


Spreadsheets do arithmetic calculations that automatically update when values are changed. For example, if cell B1 contains .05, B2 contains .02, B3 contains 4.8, and B5 contains the Henderson-Hasselbach formula  $=B3+LOG10(B1/B2)$ , then cell B5 will display 5.198. Change cell B1 to .04 and cell B5 will automatically display 5.101 without any further actions from you. Spreadsheets are especially useful when you do repetitive calculations or create a model.



## Cell contents

Cells are named letter column first, row number second such as A1 or CD142.

The active cell has a box around it. 

4.8
5.198

 Move to another active cell by pressing arrow keys or clicking on a new cell. Return moves downward and tab moves to the right.

*Text* has at least one non-numeric character. As you type, the content appears in the cell and in the edit box. If the text is wider than the cell, it will automatically overflow adjacent cells as long as they are empty.

*Numbers*. Use Format/Cells/Number to set the number of digits displayed.

*Formulas* start with = and you type the formula using cell addresses and + - \* / ^ % ( ) or &(text concatenation). When typing a formula the cell address can be automatically entered by pointing to a cell with the mouse or cursor keys. *Finish the formula by pressing return, tab, or enter.* Formulas are displayed in the edit box, and the calculation result is displayed in the cell. When Excel finds a cell address in an arithmetic expression, it will calculate the expression using the value found in the specified cell. When the value in the cell referenced by the arithmetic formula changes (for any reason) the value in the computed cell will be automatically updated.

If you type in a cell you must click on  or press return tab or enter to store the line and enter changes. Click on  or press ESC to not make changes.

## Selection of a range (a row, column, or rectangle)

A range is specified by top left : bottom right (as in A1:A27 or A1:C1 or A3:F9).

Click on a cell to make it active. The cursor will change to an open plus sign  $\oplus$ . Drag the lower right corner or shift-click to extend the range.

To select a column or row, click on column or row heading. To select all, click on the box in the upper left.

Use copy and paste to duplicate the region (or see autofill).

Use cut and paste to move cell contents or place the cursor on the edges and it will



become a hand. Drag the range to put it in a new location.

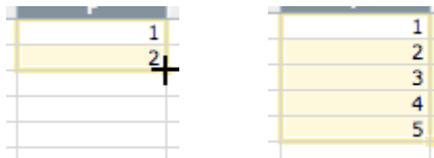
### Autofill

Position the mouse in the bottom right of the selected cell or range so that the cursor



turns to a small black plus sign. Drag the mouse to a new location.

The contents of the original cells will be copied, formulas updated, series extended, etc. to fill the new range.



Before dragging

After dragging

Cell addresses can be absolute or relative. When formulas are copied, relative addresses change to maintain the same relative location from the formula address. To indicate an absolute address, the row and column is preceded by \$. For example, if B5 contains  $= (B3 - B4) / \$A\$2 + B\$1$ , then copying B5 to C5 produces  $= (C3 - C4) / \$A\$2 + C\$1$ .

### Some Functions

- $=\text{SUM}(B3:P3)$  total of numeric entries
- $=\text{COUNT}(B3:P3)$  number of non-blank numeric entries
- $=\text{AVERAGE}(B3:P3)$  sum/count
- $=\text{STDEV}(B3:P3)$  standard deviation
- $=\text{IF}(\text{condition}, \text{value if true}, \text{value if false})$ 
  - condition uses =, <>, <, <=, >, >=
  - values are text, numbers or formulas (including another IF!)

If you are not sure of a function, put cursor at desired location and choose Insert/Formula from the menubar.

### Sorting

Select the region that you wish to sort. Make sure all the data in the row has been selected or the rows will not move together during the sort. Choose menu Data/Sort, identify the column that will be used to do the sorting, and select whether the alphabetical/numerical values will increase or decrease after sorting.

### Conditional Formatting

Select the cells. Choose Home > Conditional Formatting

### x-y Graphs

Select the data to be plotted. Open Chart toolbar and select Scatter. Drag to resize.

With the chart area selected, choose Chart Layout. Pulldown on the Current Selection dialog or click on a Label to change. To fit a line to the data use the Trendline command