UNIVERSITY OF MARYLAND
University College

Learning Resource

An Example of the Difference Between Relative and Absolute Cell References.

A cell reference is simply the address of a cell (or cells). There are many kinds of cell references, but here we will discuss only two – relative cell reference and absolute cell reference. These are especially applicable when copying a formula from one cell to another.

Let's say that in Cell F25 (column F, row 25) you have put the formula +sum(A1:D1). This will find the sum of the values in cells A1, B1, C1, and D1. If you copy this formula to Cell F26,one row down, the formula will automatically change to +sum(A2:D2) – finding the sum of the values of Cells A2, B2, C2 and D2. This is an example of a relative cell reference – the formula changes as it is copied to a new location.

But let's say you want to use a fixed value in a formula without having to type that fixed value each time – an absolute reference. For example, put the value 100 in cell A1 and some other values in other cells

	A	B
1	100	
2	55	23
3	42	75

You want to add the values in each row but then divide the sum by 100. There are several ways to do this simple calculation.
In C2 put the formula (A2+B2)/100

	A	B	C
1	100		
2	55	23	(A2+B2)/100
3	42	75	

If you simply copy this formula into C3, it will automatically update to (A3+B3)/100. This, again, is a RELATIVE cell reference – the formula changes the referenced cells as it is copied to a new location.

However, there is a more elegant way to write the formula, using the value in A1 without actually using the "100" in the formula. In ABSOLUTE cell reference, the formula in cell C2 would be written as (A2 + B2)/$A$1.

	A	B	C
1	100		
2	55	23	(A2+B2)/$A$1
3	42	75	

Note the difference. Instead of using the numeric value 100, you use a reference to the cell that contains that value – but with an addition $ before both the column indicator and the row indicator ($A$1). Now when that formula is copied to cell C3, the A2 becomes A3 and the B2 becomes B3, but the $A$1 remains unchanged.

	A	B	C
1	100		
2	55	23	(A2+B2)/$A$1
3	42	75	(A2+B2)/$A$1

An ABSOLUTE cell reference always contains the $ along with the row/column indicator of a value that you want unchanged when the formula is copied to other cells.