



Relative vs Absolute Cell Referencing

Excel uses two types of cell references to create formulas. Each has its own purpose. You must determine which type of cell reference to use for your formula.

Relative Cell References

This is the most widely used type of cell reference in formulas. Relative cell references are basic cell references that adjust and change when copied or when using AutoFill.

Example: =SUM(B5:B8), as shown below, changes to =SUM(C5:C8) when copied across to the next cell.

	A	B	C
1	Smith's Bo		
2	Septemb		
3			
4	Region	Books	Periodicals
5	North	\$15,678	\$8,798
6	South	\$13,865	\$9,778
7	East	\$25,401	\$11,392
8	West	\$18,552	\$4,928
9	Product Total	\$73,496	

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7	East	\$25,401	\$11,392
8	West	\$18,552	\$4,928
9	Product Total	\$73,496	\$34,892

Absolute Cell References

Situations arise in which the cell reference must remain the same when copied or when using AutoFill. Dollar signs are used to hold a column and/or row reference constant.

Example:

In the example below, when calculating commissions for sales staff, you would not want cell B10 to change when copying the formula down. You want both the column and the row to remain the same to refer to that exact cell. By using \$B\$10 in the formula, neither changes when copied.

	A	B	C
1	Commissions - November 2000		
2			
3		Total Sales	Commission
4	Bob	26,000	=B4*\$B\$10
5	Sally	35,350	
6	Joseph	42,000	
7	Celia	28,800	
8			
9			
10	Rate:	10%	

C5 = =B5*\$B\$10

	A	B	C
1	Commissions - November 2000		
2			
3		Tot:	Cell B10 does not change when filled.
4	Bob	26,000	2600
5	Sally	35,350	3535
6	Joseph	42,000	4200
7	Celia	28,800	2880
8			
9			
10	Rate:	10%	

A more complicated example:

Let's pretend that you need to calculate the prices of items in stock with two different price discounts. Take a look at the worksheet below.

	A	B	C	D	E	F
1	Sale Price Comparisons					
2						
3	Item #	Product	Price		Discount A	Discount B
4	125A	Scooter	\$59.99		=C4-\$C4*A\$12	
5	769A	Tricycle	\$129.95			
6	78B	Soccer Ball	\$12.35			
7	489A	Crybaby Doll	\$21.99			
8	57B	Art Kit	\$14.95			
9						
10	Discounts					
11	A	B				
12	10%	15%				

Examine the formula in cell E4. By making the first cell reference \$C4, you keep the column from changing when copied across, but allow the row to change when copying down to accommodate the prices of the different items going down. By making the last cell reference A\$12, you keep the row number from changing when copied down, but allow the column to change and reflect discount B when copied across. Confused? Check out the graphics below and the cell results.

Copied Across

F4		= \$C4-\$C4*B\$12				
A	B	C	D	E	F	
1	Sale Price Comparisons					
2						
3	Item #	Product	Price	Discount A	Discount B	
4	125A	Scooter	\$59.99	\$53.99	\$50.99	
5	789A	Tricycle	\$129.95			
6	78B	Soccer Ball	\$12.35			
7	489A	Crybaby Doll	\$21.99			
8	57B	Art Kit	\$14.95			
9						
10	Discounts					
11	A	B				
12	10%	15%				

Copied Down

E5		= \$C5-\$C5*A\$12				
A	B	C	D	E	F	
1	Sale Price Comparisons					
2						
3	Item #	Product	Price	Discount A	Discount B	
4	125A	Scooter	\$59.99	\$53.99	\$50.99	
5	789A	Tricycle	\$129.95	\$116.96		
6	78B	Soccer Ball	\$12.35	\$11.12		
7	489A	Crybaby Doll	\$21.99	\$19.79		
8	57B	Art Kit	\$14.95	\$13.46		
9						
10	Discounts					
11	A	B				
12	10%	15%				

Now, you might be thinking, why not just use 10% and 15% in the actual formulas? Wouldn't that be easier? Yes, if you are sure the discount percentages will never change - which is highly unlikely. It's more likely that eventually those percentages will need to be adjusted. By referencing the *cells* containing 10% and 15% and not the actual numbers, when the percentage changes all you need to do is change the percentage one time in cell A12 and/or B12 instead of rebuilding all of your formulas. Excel would automatically update the discount prices to reflect your discount percentage change.

Summary of absolute cell reference uses:

\$A1	Allows the row reference to change, but not the column reference.
A\$1	Allows the column reference to change, but not the row reference.
\$A\$1	Allows neither the column nor the row reference to change.

There is a shortcut for placing absolute cell references in your formulas!

When you are typing your formula, after you type a cell reference - press the **F4** key. Excel automatically makes the cell reference absolute! By continuing to press **F4**, Excel will cycle through all of the absolute reference possibilities. For example, in the first absolute cell reference formula in this tutorial, =B4*\$B\$10, I could have typed, =B4*B10, then pressed the **F4** key to change B10 to \$B\$10. Continuing to press **F4** would have resulted in B\$10, then \$B10, and finally B10. Pressing **F4** changes only the cell reference directly to the left of your insertion point.