

## Application: Excel - Working with Relative and Absolute References

### Relative References

Cell references are, by default **Relative References**. This means that the position of a cell referenced in a formula is treated as relative to the cell containing the formula. One way to think about it is as a direction from the formula cell to the cell in the formula. For example: If you refer to cell A1 from a formula in cell B2 the relative position is one cell left and one cell up.

	A	B
1	2	
2		=A1*17.5%

When you copy the formula, the reference will update to maintain the same direction from the new position. If the formula above is copied to B3 it would be as follows:

	A	B
1	2	
2	3	=A1*17.5%
3		=A2*17.5%

Another example is below:

	A	B	C	D
1	Excel	PowerPoint	Word	Total
2	23	45	92	=SUM(A2:C2)
3	75	300	63	
4	15	19	32	

If the formula in D2 above is copied to D3 and D4 the result will be:

	A	B	C	D
1	Excel	PowerPoint	Word	Total
2	23	45	92	=SUM(A2:C2)
3	75	300	63	=SUM(A3:C3)
4	15	19	32	=SUM(A4:C4)

### Absolute References

Absolute References can be used to fix the location of the cell in the formula when you don't want it to update when it is copied from one cell to another. You can use an absolute reference to keep a row and/or column **constant**.

To make a reference absolute add a **dollar sign (\$)** to the cell reference in the formula. It can precede the column reference, row reference, or both.

\$\$2	The column and the row will not update when copied
A\$2	The row will not update when copied
\$A2	The column will not update when copied

1. Edit the formula and type in the **dollar sign (\$)** as required
2. Alternatively, make sure you are positioned in or directly next to the cell you wish to make absolute and **press F4**. You can do this while entering a formula or while in edit mode.

For example – the reference to cell B1 has been made absolute

	A	B
1	Exchange Rate	2.5
2	15	=A2*\$B\$1
3	17	

When it is copied the reference to cell A2 will update as it is still relative but the reference to the exchange rate in cell B1 will remain the same.

	A	B
1	Exchange Rate	2.5
2	15	=A2*\$B\$1
3	17	=A3*\$B\$1

