

MS Office 2010 (MS Word 2010 & MS Excel 2010)

Lesson 02 : Understanding
Cell Reference

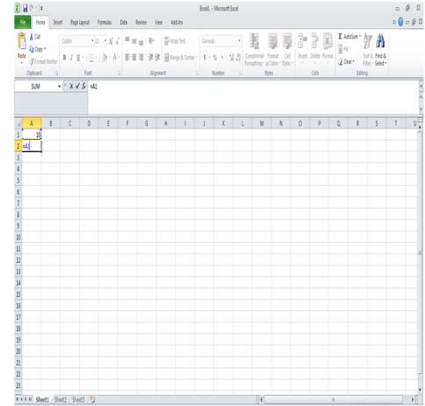
Lesson Objectives

- Using Cell References
- Types of cell references
- Relative Reference
- Absolute Reference
- Mixed Reference
- Cell reference to another worksheet
- Cell reference to another workbook



Using Cell References

- Most formulas you create include references to cells or ranges.
- These references enable your formulas to work dynamically with the data contained in those cells or ranges.
- A “cell reference” means the cell to which another cell refers.
- For example, if in cell A1 you have =A2. Then A1 refers to A2.



Add the notes here.

Types of cell references

- There are three types of cell references.
 - Absolute – This means the cell reference stays the same if you copy or move the cell to any other cell. This is done by anchoring the row and column, so it does not change when copied or moved.
 - Relative – Relative referencing means that the cell address changes as you copy or move it; i.e. the cell reference is relative to its location.
 - Mixed – This means you can choose to anchor either the row or the column when you copy or move the cell, so that one changes and the other does not. For example, you could anchor the row reference then move a cell down two rows and across four columns and the row reference stays the same.

Add the notes here.

Relative Reference

- Relative cell references are basic cell references that adjust and change when copied or when using AutoFill.

	A	B	C
1	Quantity	Price	Total
2	1	\$ 35.00	=B2*A2
3	2	\$ 28.00	\$ 56.00
4	1	\$ 32.00	\$ 32.00
5	3	\$ 22.00	\$ 66.00

	A	B	C
1	Quantity	Price	Total
2	1	\$ 35.00	=B2*A2
3	2	\$ 28.00	=B3*A3
4	1	\$ 32.00	=B4*A4
5	3	\$ 22.00	=B5*A5

Figure 1 :

- The first example is a worksheet with data for Quantity, Price, and Total. The formula in cell C2 is Price times Quantity, or **=B2*A2**.
- There are two cell references in this formula, B2 and A2. Both have a **column reference** (B and A) and a **row reference** (2).

Figure 2 :

- You'll notice that B2 changes to B3, B4, B5, and A2 changes to A3, A4, A5 when copied down.
- As we copy the formula in cell C2 all the way down to cell C5, both of these cell references change automatically. They are **relative** references. **Copying down changes the row reference.**

Absolute Reference

- 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.

	A	B	C
1	Quantity	Price	Tax
2	1	\$ 35.00	=A2*B2*\$B\$7
3	2	\$ 28.00	\$ 4.82
4	1	\$ 32.00	\$ 2.75
5	3	\$ 22.00	\$ 5.68
6			
7	Tax Rate:	8.60%	

	A	B	C
1	Quantity	Price	Tax
2	1	\$ 35.00	=A2*B2*\$B\$7
3	2	\$ 28.00	=A3*B3*\$B\$7
4	1	\$ 32.00	=A4*B4*\$B\$7
5	3	\$ 22.00	=A5*B5*\$B\$7
6			
7	Tax Rate:	8.60%	

- The reference to cell B7 is modified by using the dollar sign (\$) before the column and row reference. \$B\$7



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- The above relative cell reference example is changed to calculate the Tax for Quantity times Price.
- The Tax Rate is located in cell B7.
- The formula for Tax in cell C2 is Quantity times Price times Tax Rate, or **=A2*B2*\$B\$7**.
- The cell reference for B7 is an **absolute reference**, which is needed because the Tax Rate is fixed in one place.
- The reference to cell B7 is modified by using the **dollar sign (\$) before the column and row reference**. By doing so, B7 will remain constant as I copy the formula down to C3, C4, C5.
- The other two cell references are still relative references and change as the formula is copied down. Although, if you'll notice, neither of the column references change, they're still A and B.
- This means is that the reference to cell B7 needs only an **absolute row reference** for this formula to work. As you see below, **B\$7** is now the cell reference and row 7 will not change when you copy the formula down.

Mixed Reference

- A mixed reference is either an absolute row and relative column or absolute column and relative row.
- You add the \$ before the column letter to create an absolute column or before the row number to create an absolute row.
- For example :
 - \$A1 is absolute for column A and relative for row 1.

Add the notes here.

Cell reference to another worksheet

- Cells that are on other worksheets by appending the name of the worksheet followed by an exclamation point (!) to the start of the cell reference.
- In the following example, the worksheet function named AVERAGE calculates the average value for the range B1:B10 on the worksheet named Marketing in the same workbook.

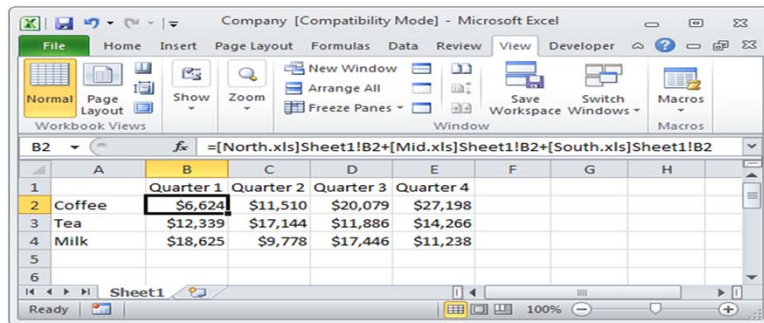
=AVERAGE(Marketing!B1:B10)

- Reference to a range of cells on another worksheet in the same workbook
 - Refers to the worksheet named Marketing
 - Refers to the range of cells between B1 and B10, inclusively
 - Separates the worksheet reference from the cell range reference

Cell reference to another workbook


- To refer to a cell or range from another workbook follow the below :


`=[filename.xls]SheetName!$Column$Row`



Demo

- Refer Chapter2_ReferencingCells.xlsx to understand Cell Referencing.





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Summary

- Absolute , Relative ,Mixed References
- Referencing Cells across Worksheets , Workbook



Add the notes here.

Review Question

■ Question 1 : How to specify cell range from A9 to A99 in Excel?

- (A9, A99)
- (A9 to A99)
- (A9 : A99)
- (A9 – A99)



■ Question 2 : If the cell B1 contains the formula = \$A\$1, which of the following statements is true.

- There is a relative reference to cell A1
- There is an absolute reference to cell A1
- Further changes in value of A1 will not affect the value of B1
- Further changes in value of B1 will affect the value of A1.

Add the notes here.