TECHMB

Intro to Microsoft Excel

Day 3

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Learning Outcomes – Day 3

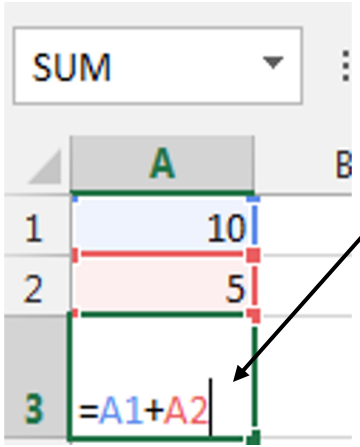
- Learn how to work with formulas and functions
- Cell references
- How to create a formula
- Point-and-click method
- Working with arguments
- Working with functions
- Using different kind of charts
- How to print a workbook

Formulas and functions

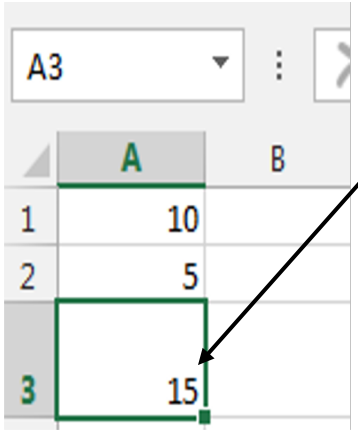
- Excel can automatically calculate numerical information using formulas
- In this lesson, we'll show you how to use cell references to create simple formulas
- Excel uses standard operators for formulas, such as a plus sign for addition (+), a minus sign for subtraction (-), an asterisk for multiplication (*), a forward slash for division (/), and a caret (^) for exponents
- All formulas in Excel must begin with an equals sign (=). This is because the cell contains, or is equal to, the formula and the value it calculates

Addition	+
Subtraction	-
Multiplication	*
Division	/
Exponents	^

Creating a formula



The formula in cell A3 refers to the value in cell A1 plus the value in cell A2

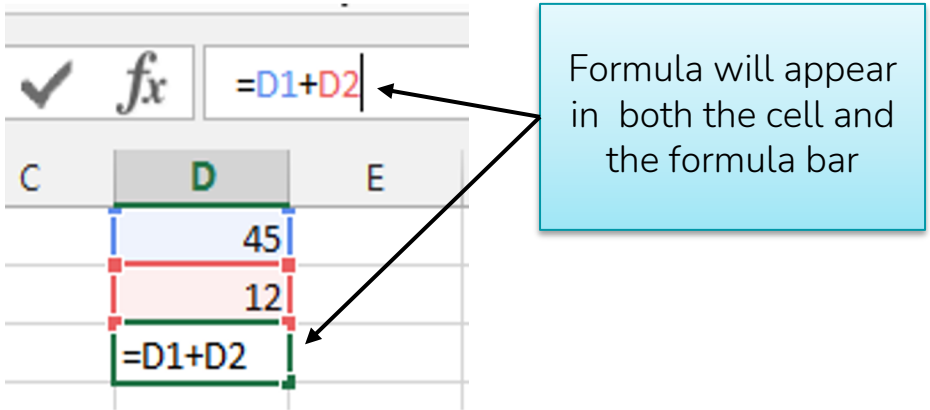


The formula calculates and displays the answer to the equation A1 plus A2

=A1+A2	Adds cells A1 and A2
=C4-3	Subtracts 3 from cell C4
=E7/J4	Divides cell E7 by J4
=N10*1.05	Multiplies cell N10 by 1.05
=R5^2	Finds the square of cell R5

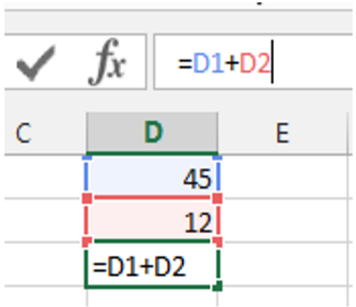
Creating a formula

- Select the cell that will contain the formula.
- Type the equals sign (=). Notice how it appears in both the cell and the formula bar. You can also type directly in the formula bar



Creating a formula

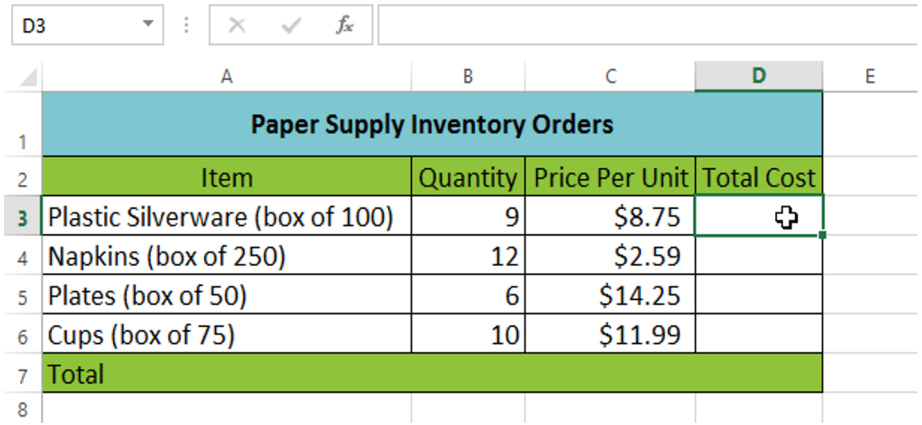
- Type the cell address of the cell you wish to reference first in the formula: cell D1 in our example. A blue border will appear around the referenced cell
- Type the mathematical operator you wish to use
- Type the cell address of the cell you wish to reference second in the formula: cell D2 in our example. A red border will appear around the referenced cell
- Hit enter and the formula will be calculated
- Tip: if the result of a formula is too large to be displayed in the cell, it will appear as pound signs (#####). Simply increase the column width to resolve



Point-and-click method

Rather than typing cell addresses manually, you can point and click on the cells you wish to include in your formula. This method can save a lot of time and effort when creating formulas

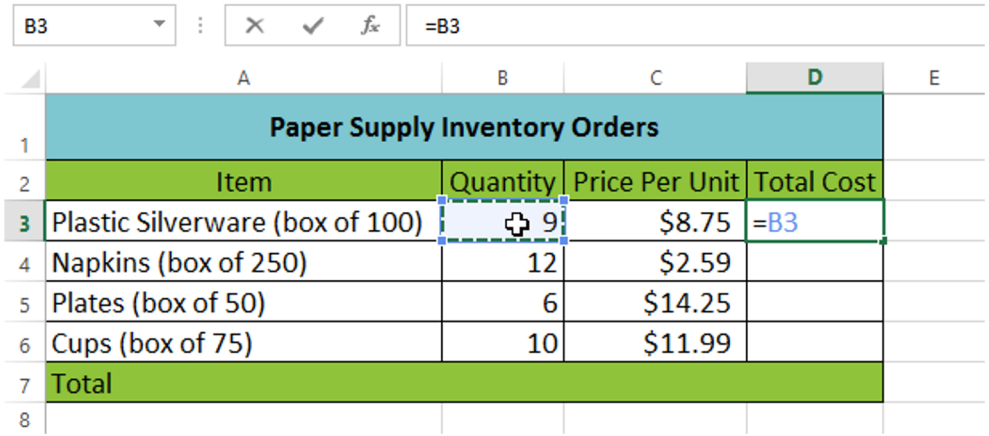
1. Select the cell that will contain the formula. In our example, we'll select cell D3
2. Type the equals sign (=)



Point-and-click method

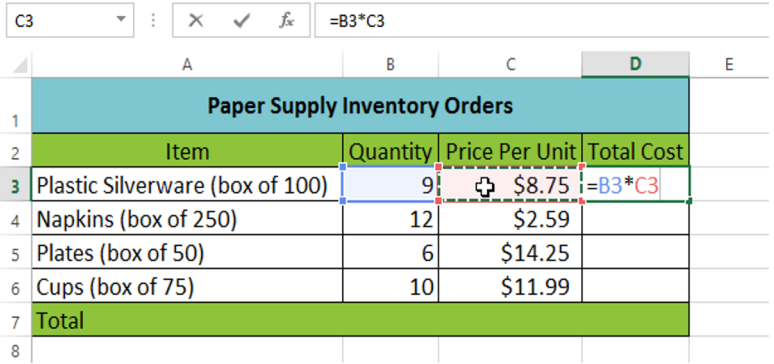
3. Select the cell you wish to reference first in the formula: cell B3 in our example. The cell address will appear in the formula, and a dashed blue line will appear around the referenced cell

4. Type the mathematical operator you wish to use. In our example, we'll type the multiplication sign (*)

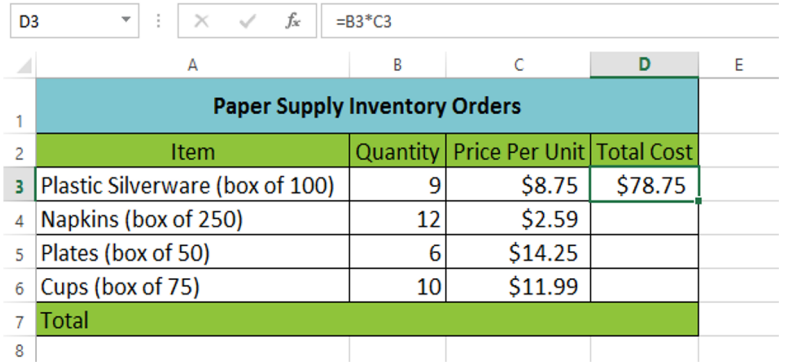


Point-and-click method

5. Select the cell you wish to reference second in the formula: cell C3 in our example. The cell address will appear in the formula, and a dashed red line will appear around the referenced cell



6. Hit enter. The formula will be calculated and the value will be displayed in the cell



Creating a function

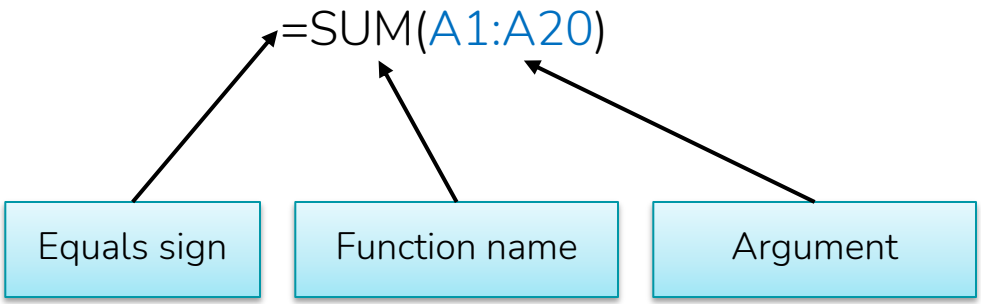
- A function is a predefined formula that performs calculations using specific values in a particular order
- Excel includes many common functions that can be useful for quickly finding the sum, average, count, maximum value, and minimum value for a range of cells
- For example, this formula and function will perform the same calculation:

Formula =A1+A2+A3+A4+A5+A6+A7+A8

Function =SUM(A1:A8)

Creating a function

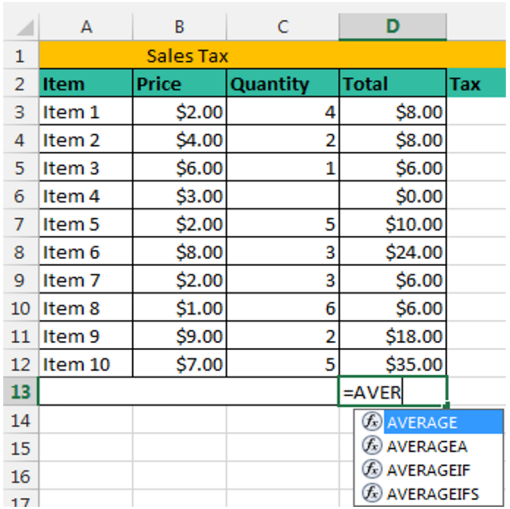
- In order to work correctly, a function must be written a specific way
- The basic syntax for a function is an equals sign (=), the function name (SUM, for example), and one or more arguments
- Arguments contain the information you want to calculate



Types of functions

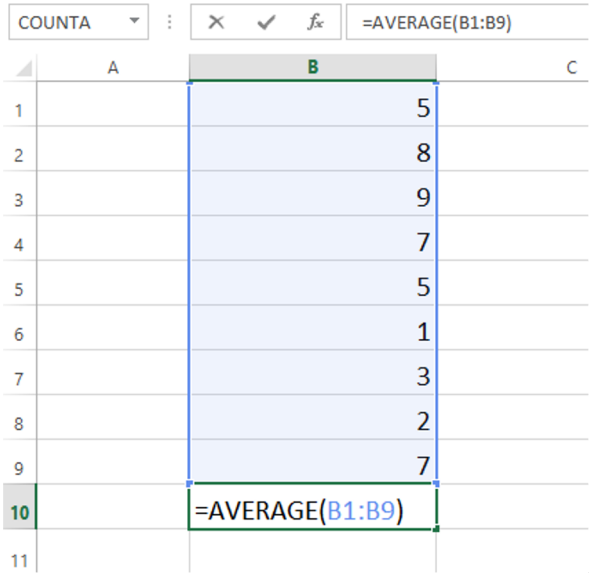
Some of the most common Excel functions:

- SUM: This function adds values of selected cells
- AVERAGE: This function finds the average/mean
- COUNT: This function counts the number of cells with numerical data
- MAX: This function determines the highest cell value of all selected cells
- MIN: This function determines the lowest cell value of all selected cells



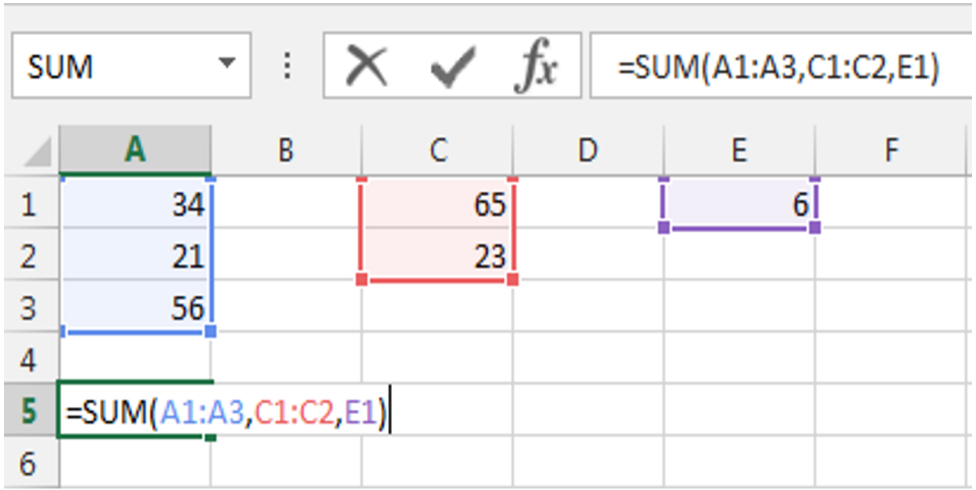
Examples of functions

- Arguments can refer to both individual cells and cell ranges and must be enclosed within parentheses. You can include one argument or multiple arguments, depending on the syntax required for the function
- For example, the function =AVERAGE(B1:B9) would calculate the average of the values in the cell range B1:B9. This function contains only one argument



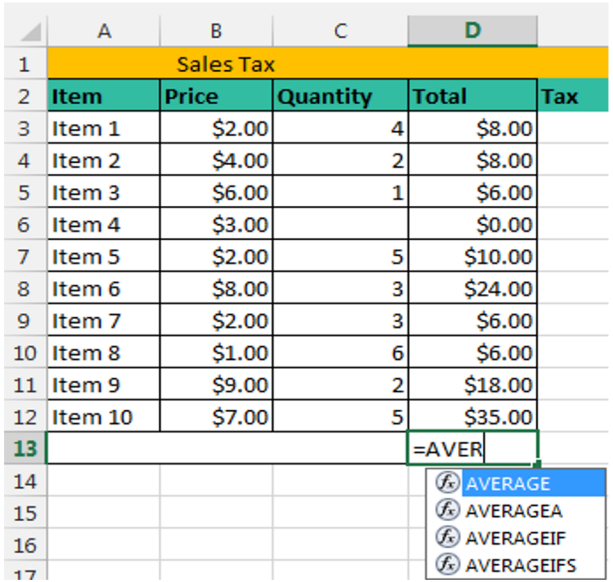
Examples of functions

Multiple arguments must be separated by a comma. For example, the function =SUM(A1:A3, C1:C2, E2) will add the values of all the cells in the three arguments



Creating a function: example

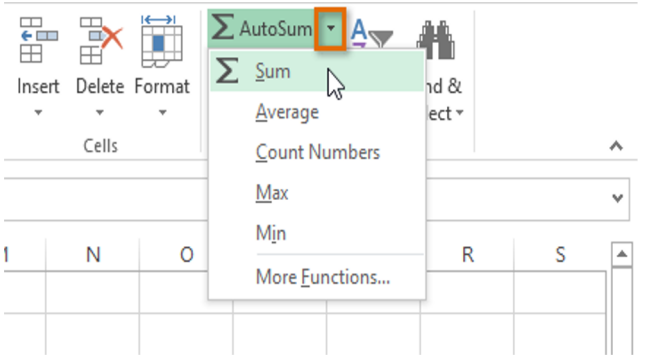
1. Select the cell that will contain the function
2. Type the equals sign (=) and enter the desired function name. You can also select the desired function from the list of suggested functions. In our example, we'll type =AVERAGE(
3. Enter the cell range for the argument inside parentheses or click and drag the cells you wish to average. In our example, we'll type (D3:D12)
4. Hit enter and the average will be calculated



Using AutoSum to create functions

The AutoSum command allows you to automatically insert the most common functions into your formula, including SUM, AVERAGE, COUNT, MIN, and MAX

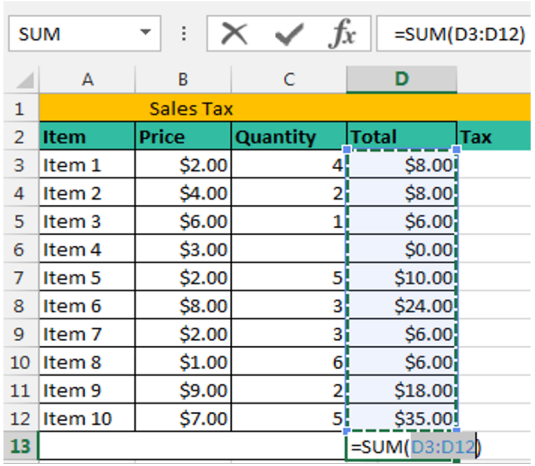
1. Select the cell that will contain the function
2. In the Editing group on the Home tab, locate and select the arrow next to the AutoSum command and then choose the desired function from the drop-down menu. In our example, we'll select Sum



Using AutoSum to create functions

3. The selected function will appear in the cell. If logically placed, the AutoSum command will automatically select a cell range for the argument. You can also manually enter the desired cell range into the argument

4. Hit enter and the sum will be calculated



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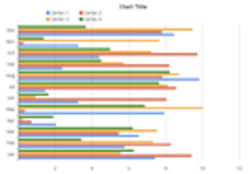
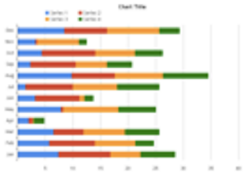
Examples of different chart types

Line chart

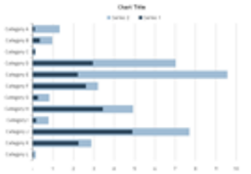
Bar chart



Stacked bar chart



Bullet bar chart



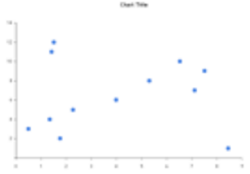
Column chart

Stacked column chart

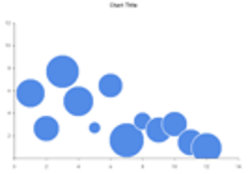
Pie chart

Pie chart with highlight

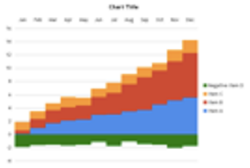
Scatterplot chart



Bubble chart



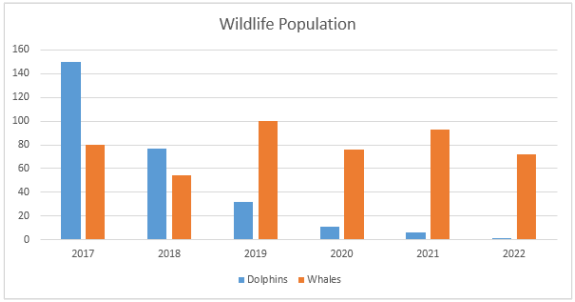
Stacked column volume chc



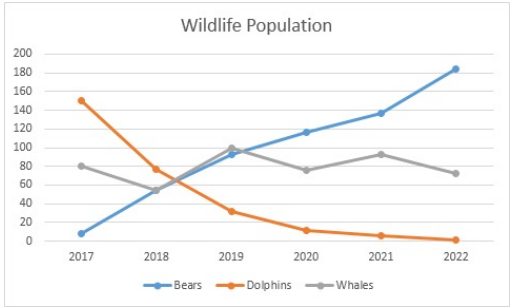
Stacked column volume wit

What are charts used for?

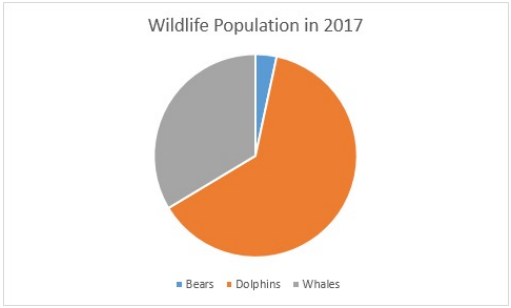
- Column and bar charts use bars to represent data. They are good for comparing different groups
- Line charts connect data points with a line, ideal for showing trends over time
- Pie charts show each value as a section of a circle, well suited to visually representing proportions



Column chart



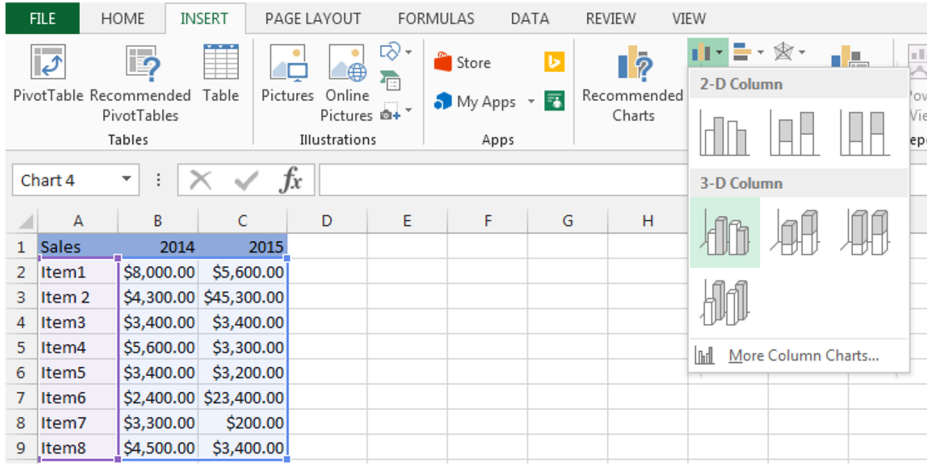
Line chart



Pie chart

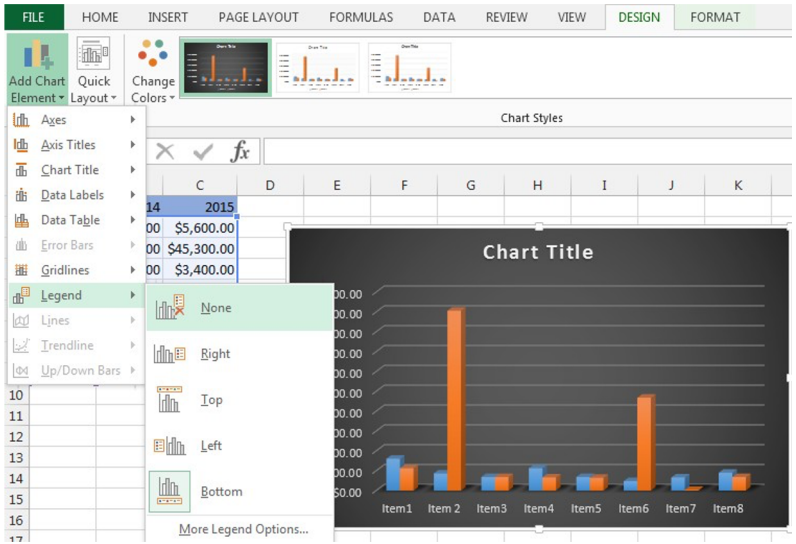
Insert a chart

- 1. Select the cells you want to chart, including the column titles and row labels. These cells will be the source data for the chart
- 2. From the Insert tab, click the desired Chart command
- 3. Choose the desired chart type from the drop-down menu
- 4. The selected chart will be inserted in the worksheet



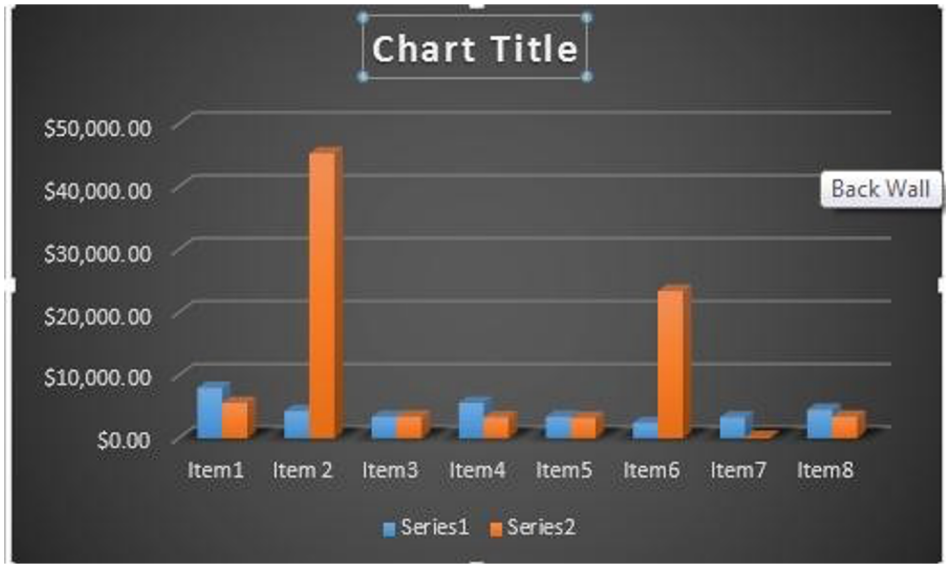
Adjust chart layout and style

- Edit the chart's layout and style from the Design tab
- Excel allows you to add chart elements—such as chart titles, legends, and data labels—to make your chart easier to read.
- To add a chart element, click the Add Chart Element command on the Design tab, then choose the desired element from the drop-down menu



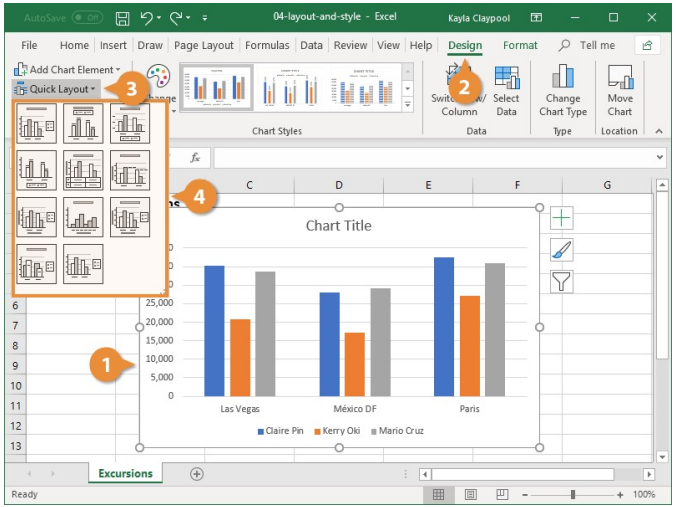
Adjust chart layout and style

To edit a chart element, like a chart title, simply double-click the placeholder and begin typing



Adjust chart layout and style

- Under the Design tab, use Quick Layout to use a predefined template, then choose the desired layout from the drop-down menu.
- The Chart Styles group allows you to quickly change the appearance of your chart



Change the chart type

If you find that your data isn't well suited to a certain chart, it's easy to switch to a new chart type. In our example, we'll change our chart from a Column chart to a Line chart.

1. From the Design tab, click the Change Chart Type command.
2. The Change Chart Type dialog box will appear.
3. The selected chart type will appear.

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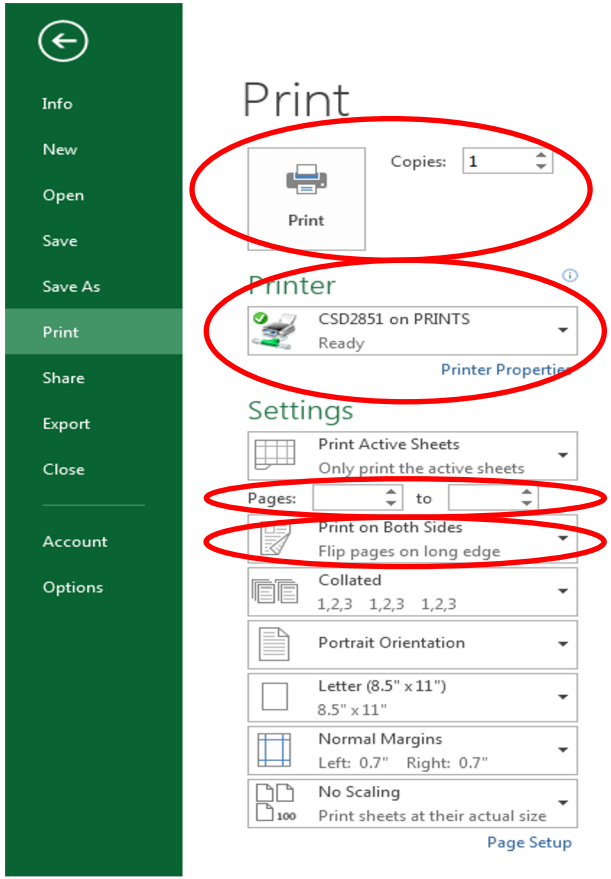
Practice!

Open an existing Excel 2013 workbook.

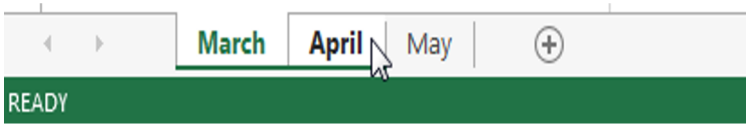
1. Use worksheet data to create a chart.
2. Change the chart layout.
3. Apply a chart style.
4. Move the chart.

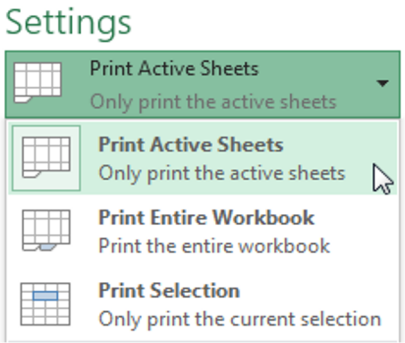
Print options

To print, select the File tab, then select print



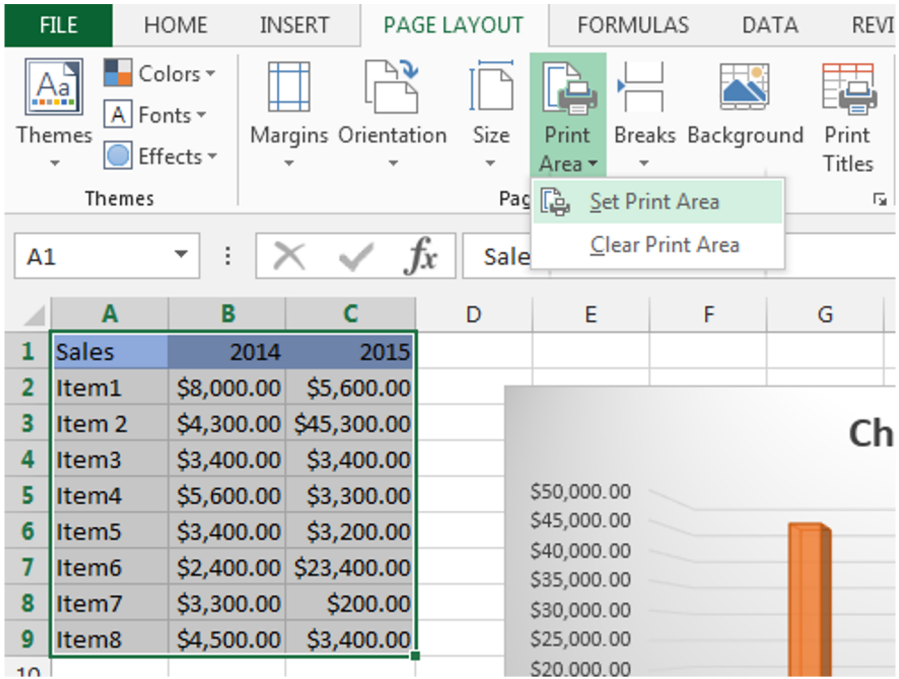
Choose which sheet to print

1. 

2. 

3. 

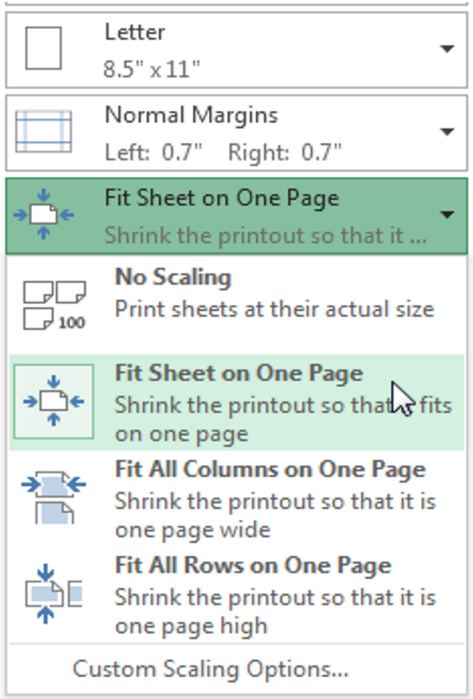
Print selected cells



Fitting content on one page

If some of your content is being cut off by the printer, you can use scaling to fit your workbook to the page automatically

1. Navigate to the Print pane
2. Select the desired option from the Scaling drop-down menu. In our example, we'll select Fit Sheet on One Page
3. The worksheet will be condensed to fit onto a single page
4. When you're satisfied with the scaling, click Print



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You MUST complete the survey to receive your certificate. Please complete this survey as it allows us to get funding from the government and continue delivering these free courses.

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Questions?