Introduction to Computers Lab
First Year (2017 – 2018)

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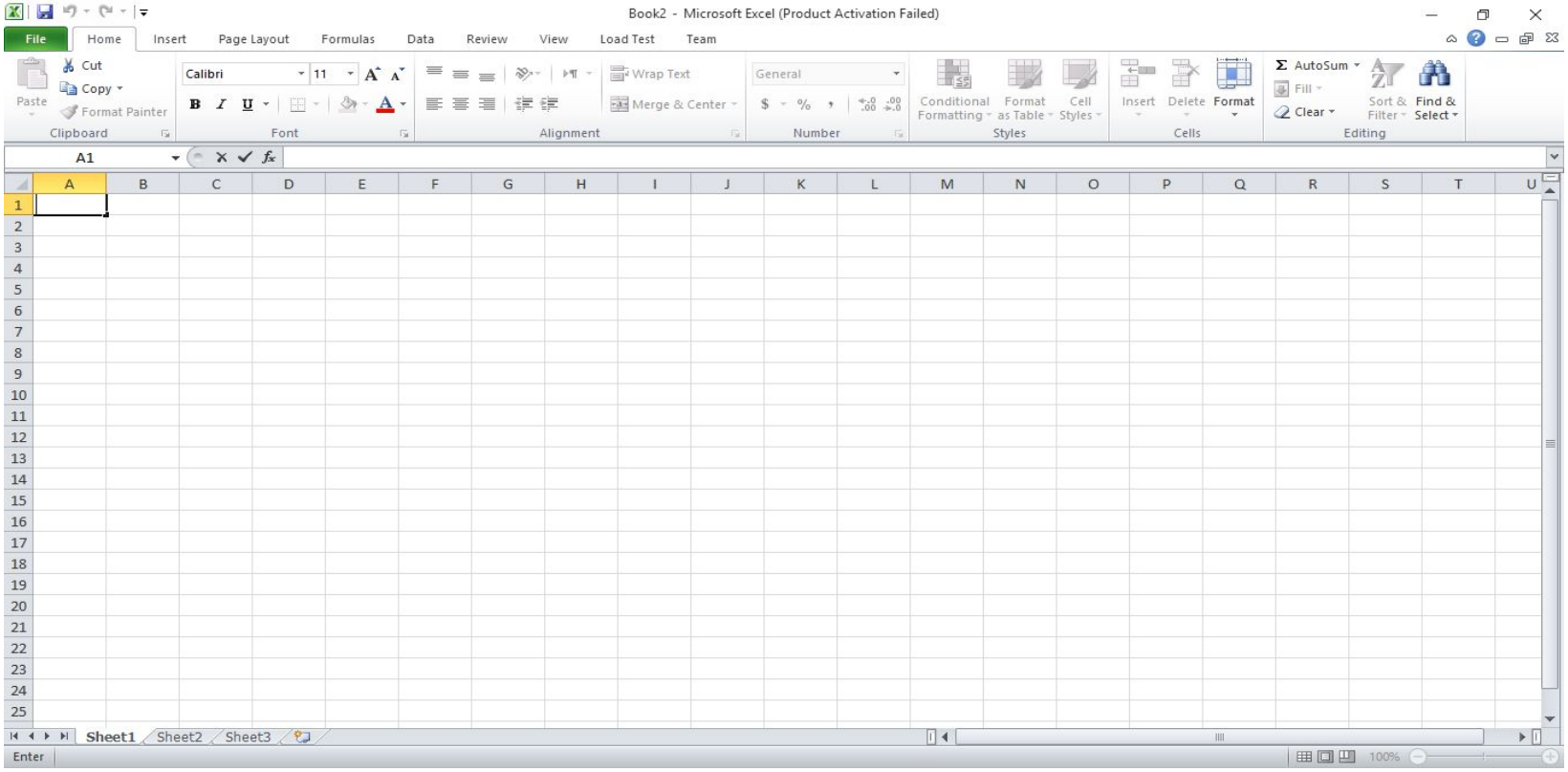
Lab 3

Agenda

1. Getting Started with Microsoft Excel 2010.
2. Entering Excel Formulas and Formatting Data.
3. Creating Excel Functions, Filling Cells.
4. Creating Charts.

1. Getting Started with Microsoft Excel

- Microsoft Excel is an electronic spreadsheet.
- It is used to organize the data into rows and columns.
- It is also used to perform mathematical calculations quickly.



The Microsoft Button Office

- Used to create a new file, open an existing file, save a file, and perform many other tasks.

The Quick Access Toolbar

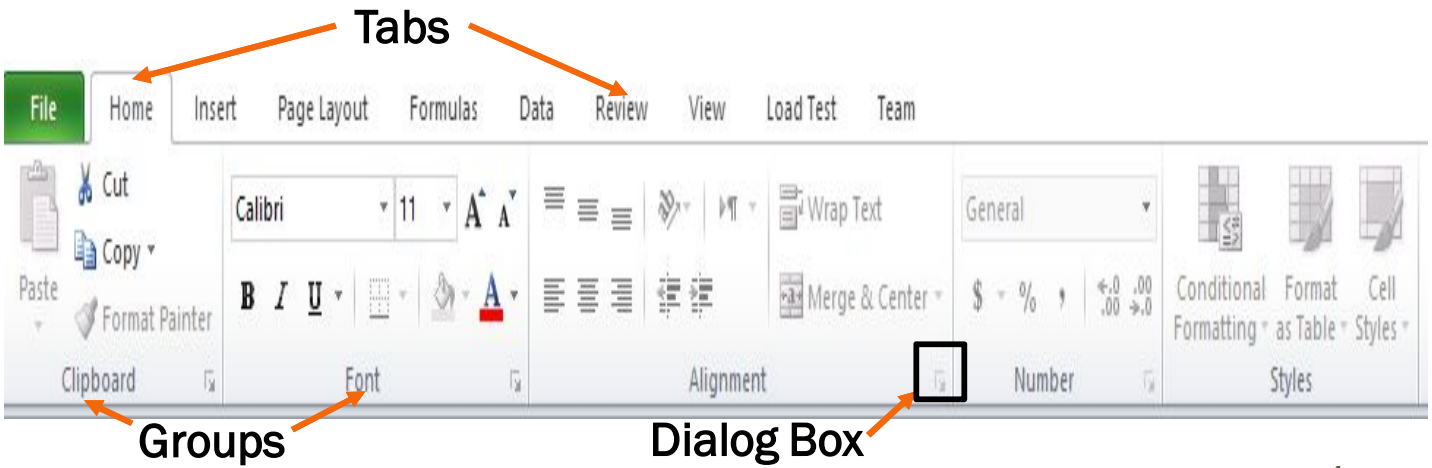
- It gives access to commands you frequently use.

The title toolbar

- Microsoft Excel displays the name of the workbook you are currently using.

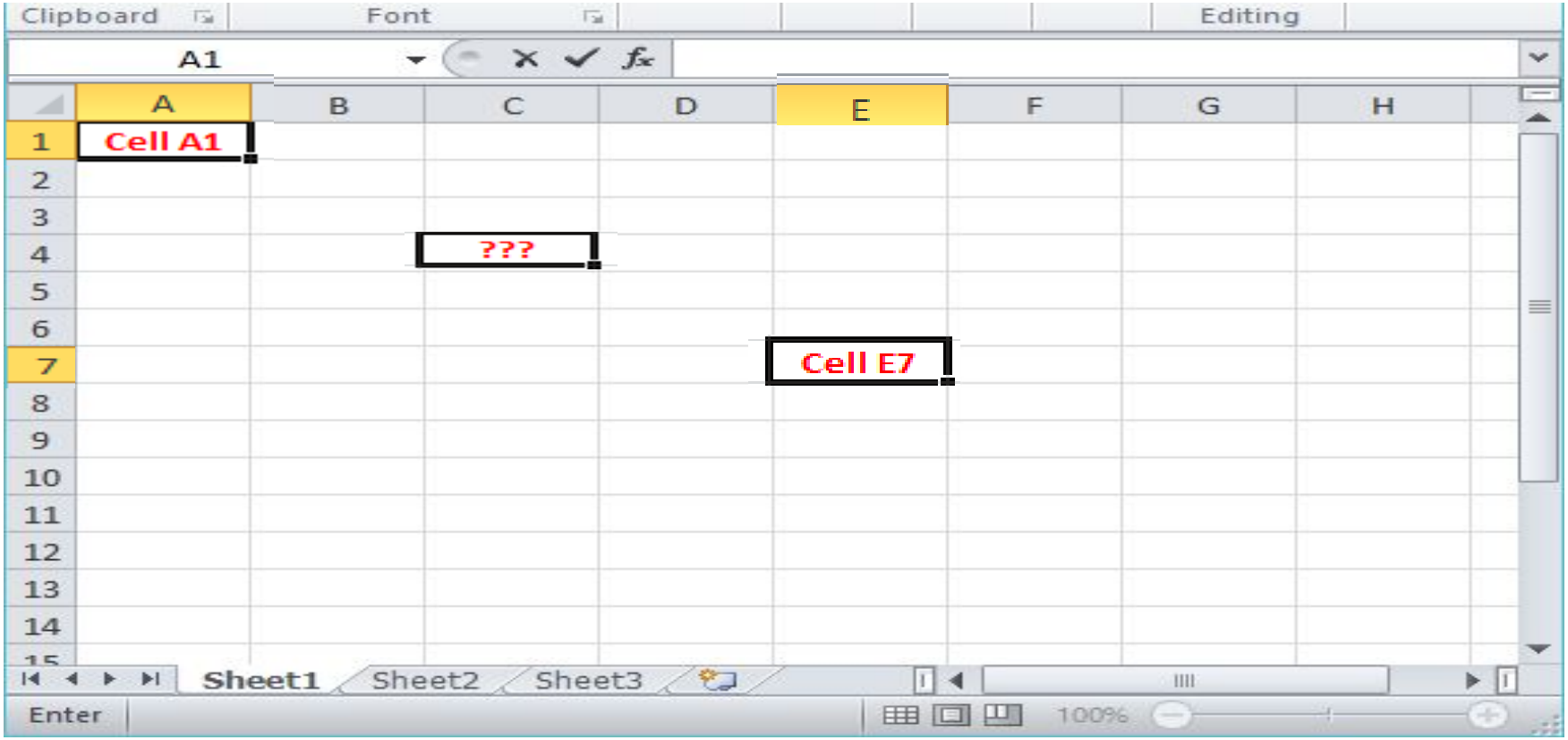
The Ribbon

- you use the Ribbon to issue commands.



Worksheets

- Each worksheet contains columns and rows.
- The combination of a column coordinate and a row coordinate makes up a cell address.



The Formula Bar

- It displays the cell address of the cell you are in in the Name box.
- If you do not see the Formula bar in your window, perform the following steps:
  - Choose the View tab.
  - Click Formula Bar in the Show/Hide group. The Formula bar appears.

Move around a Worksheet

- By using the arrow keys, you can move around your worksheet.

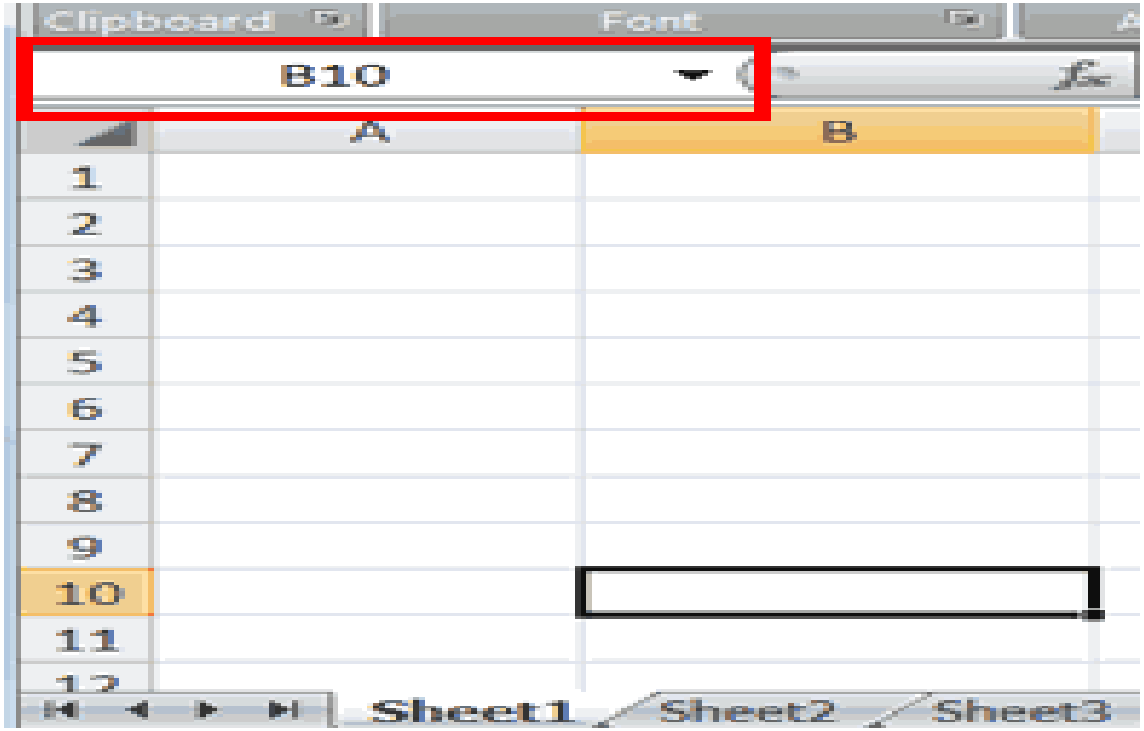
Key	Function
Down arrow key	Move downward one cell at a time.
Up arrow key	Move upward one cell at a time.
Tab key	Move across the page to the right, one cell at a time.
Shift key + Tab key	Move to the left, one cell at a time.
Right and left arrow keys	Move right or left one cell at a time.
Page Up and Page Down keys	Move up and down one page at a time.
Ctrl key + Home key	Move to the beginning of the worksheet.

Go To Cells Quickly

- *The Name Box*

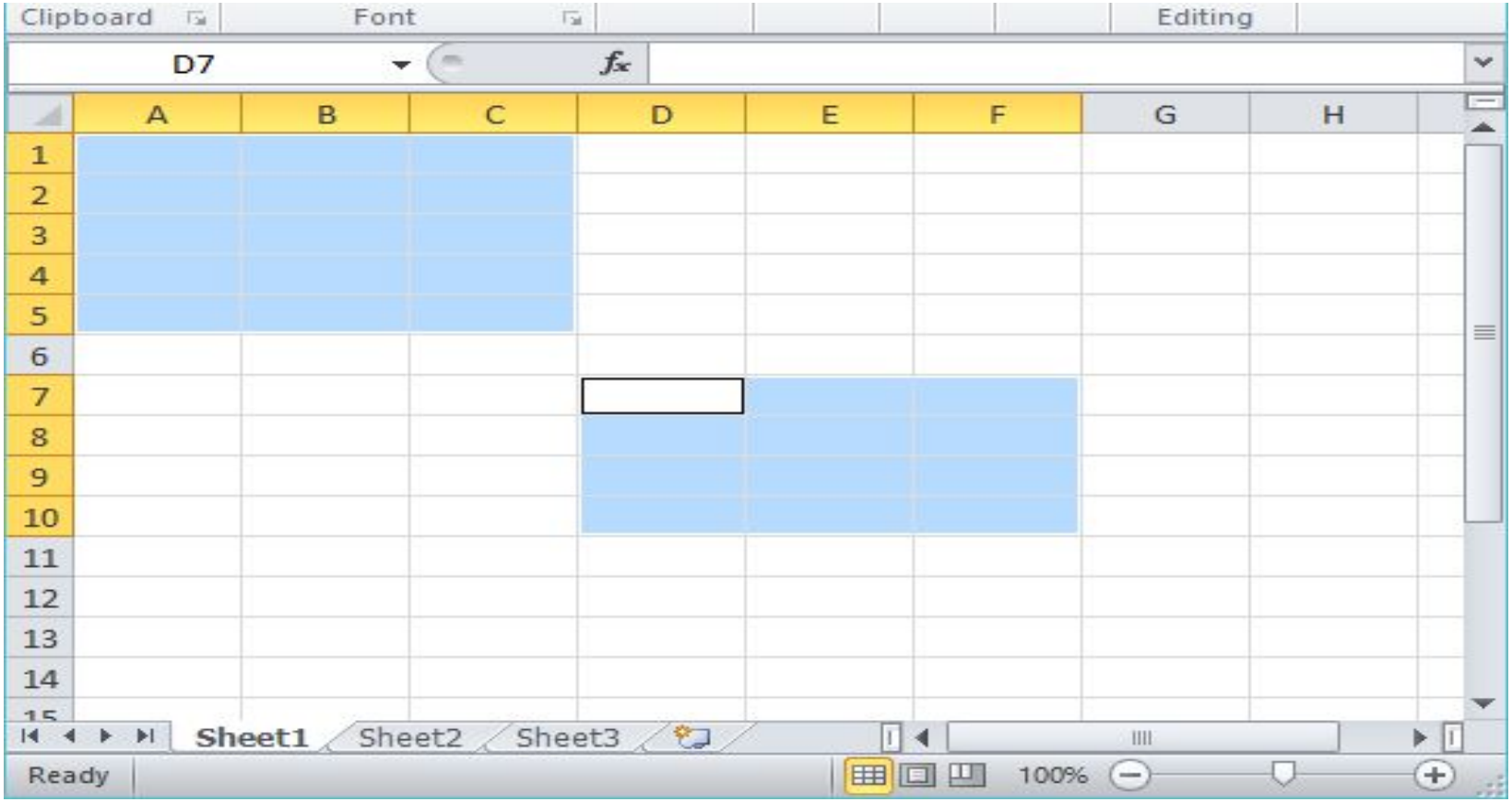
  It is used to go to a specific cell. Just type the cell you want to go to in the Name box and then press Enter.

  - Type B10 in the Name box.
  - Press Enter. Excel moves to cell B10.



Select Cells by Dragging

- By holding down the left mouse button and dragging the mouse over the area.
- In addition, you can select noncontiguous areas of the worksheet.

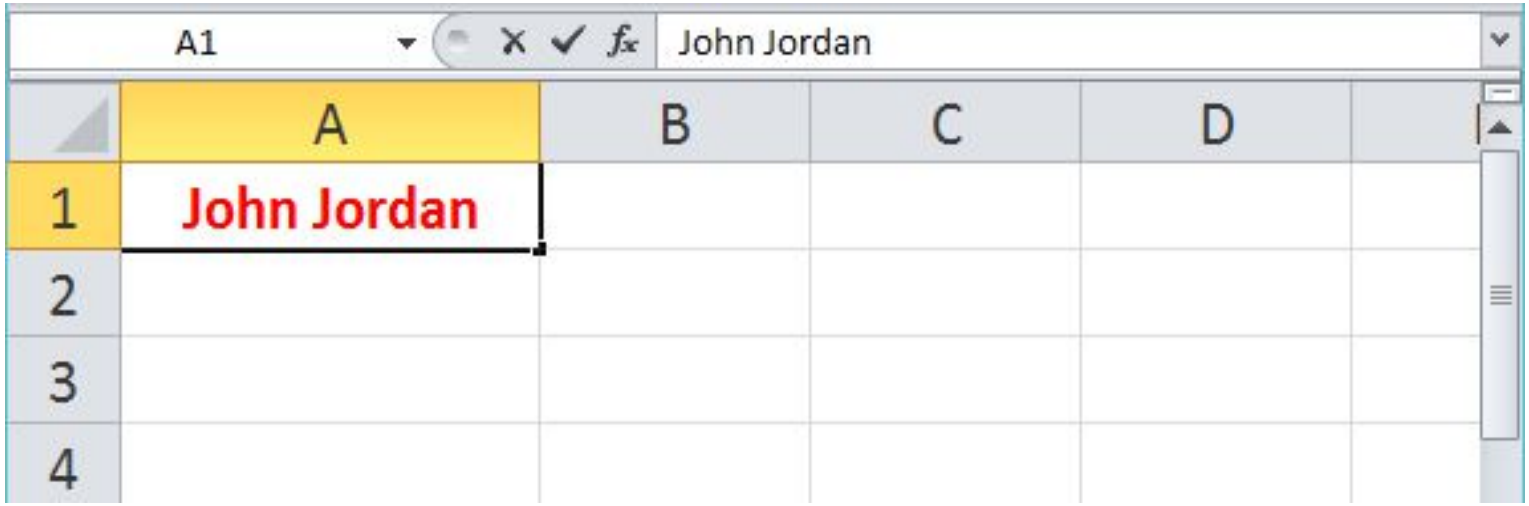


Enter Data

- First, place the cursor in the cell in which you want to start entering data.
- Type some data, and then press Enter.
- If you need to delete, press the Backspace key to delete one character at a time.

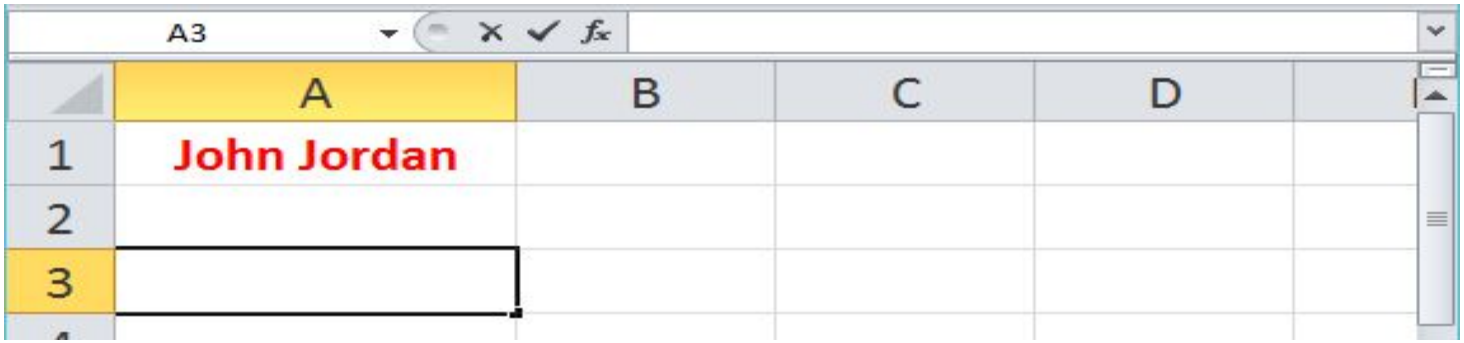
Exercise

1. Place the cursor in cell A1.
2. Type **John Jordan**. Do not press Enter at this time.



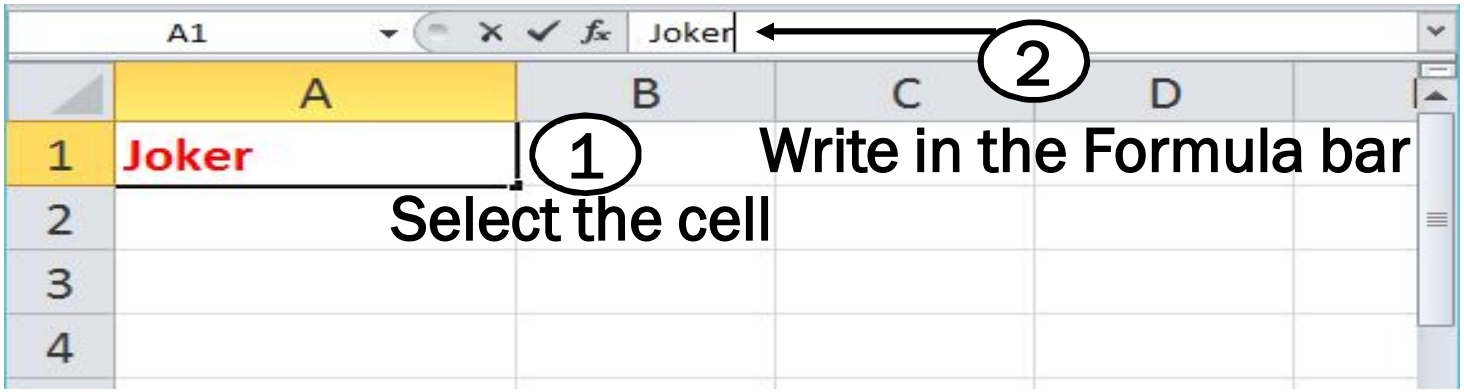
Edit a Cell

- After you enter data into a cell, you can edit the data by pressing F2 while you are in the cell you wish to edit or double click with the lift mouse button on it .



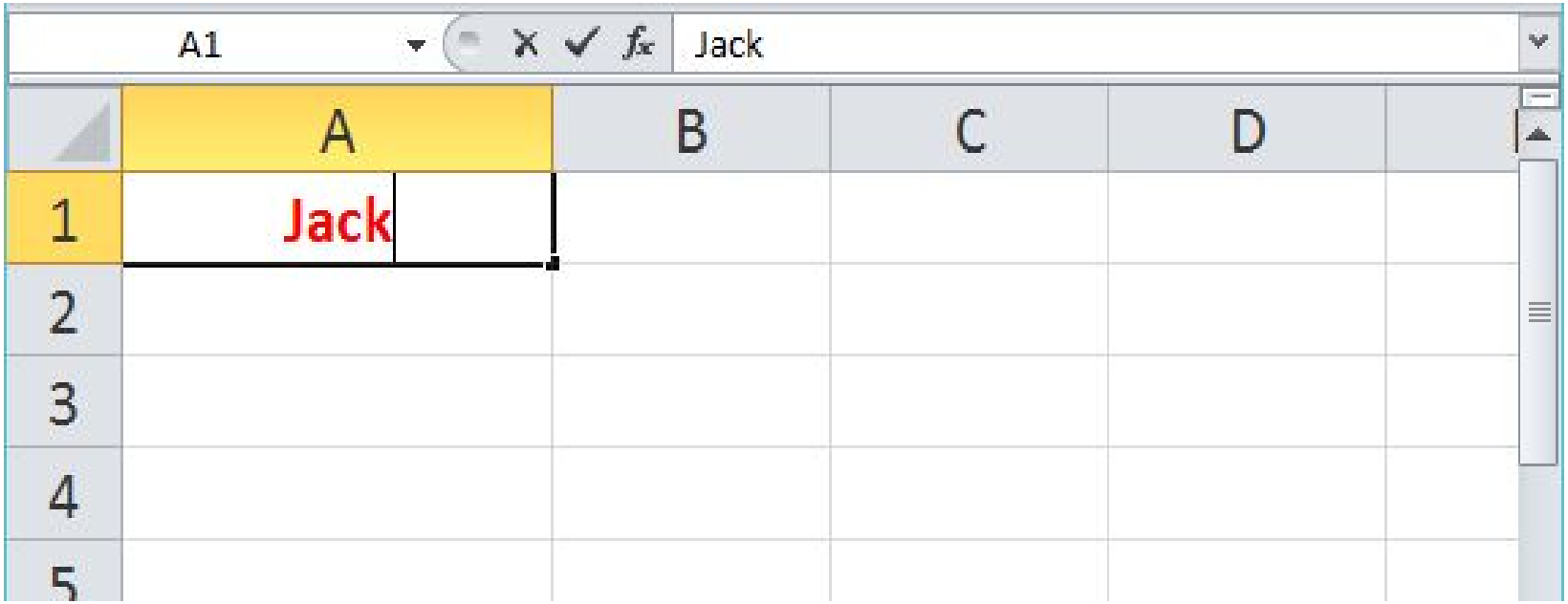
Alternate Method: Editing a Cell by Using the Formula Bar

- You can also edit the cell by using the Formula bar.
- You change "John Jordan" to "Joker" in the following exercise.



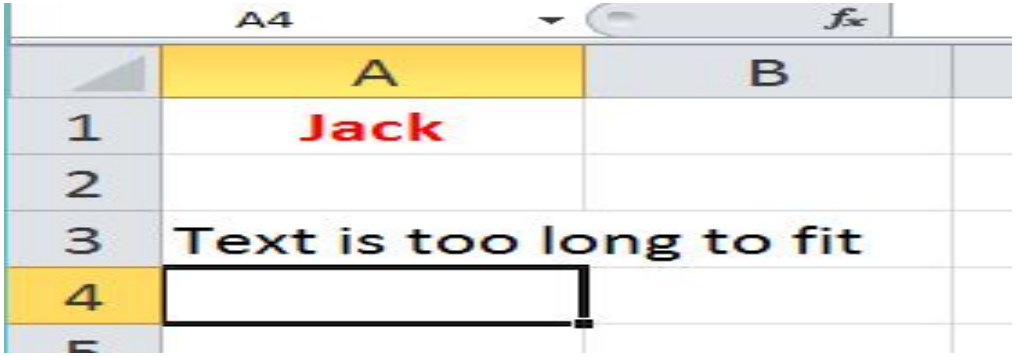
Change a Cell Entry

- Typing in a cell replaces the old cell entry with the new information you type.
- Change "Joker" to “Jack"

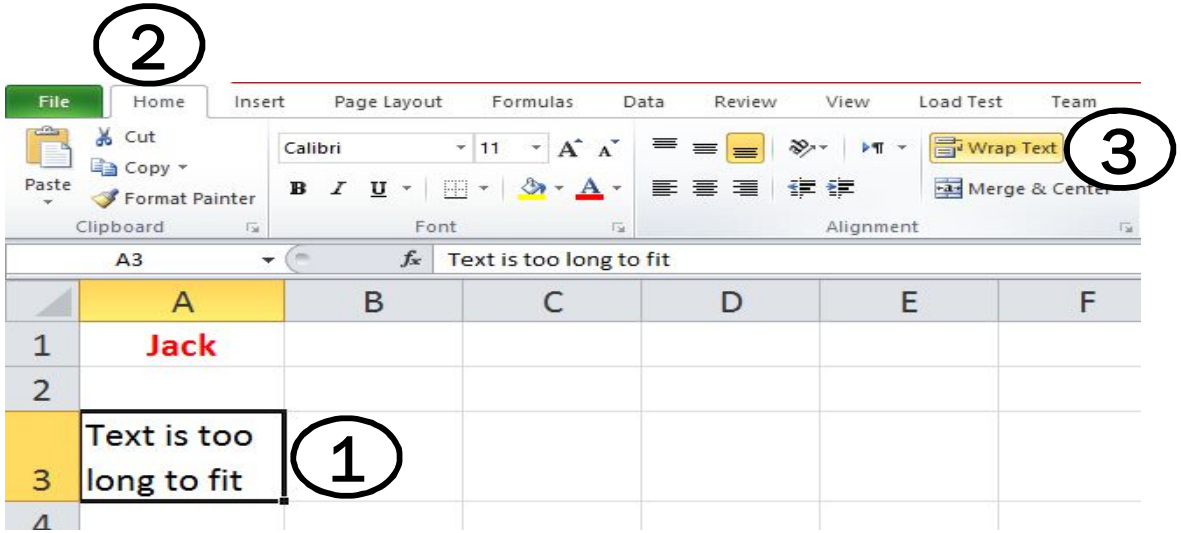


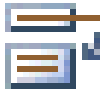
Wrap Text

- When you type text that is too long to fit in the cell, the text overlaps the next cell. If you do not want it to overlap the next cell, you can wrap the text.



1. Move to cell A3.
2. Type Text too long to fit.
3. Press Enter.

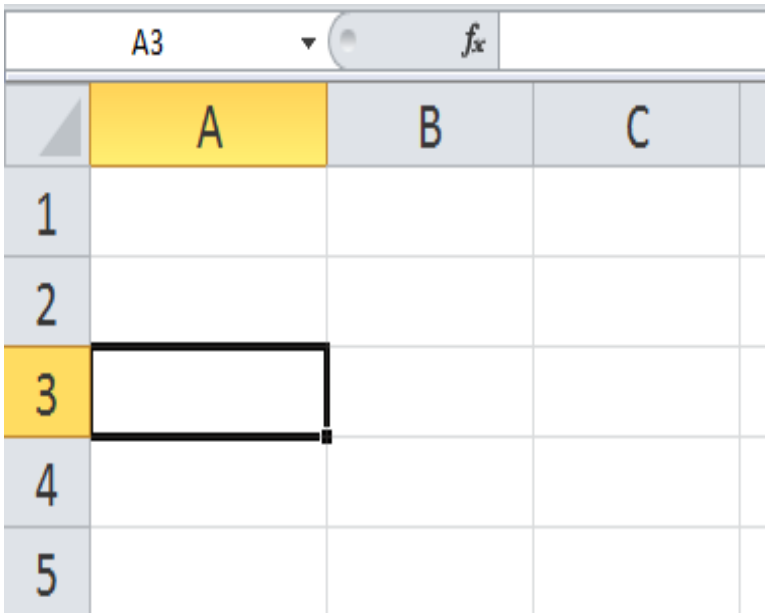


4. Return to cell A3.
5. Choose the Home tab.
6. Click the Wrap Text button  . Excel wraps the text in the cell.

Delete a Cell Entry

- To delete an entry in a cell or a group of cells, you place the cursor in the cell or select the group of cells and press Delete.

- Example:
  - Select cells A1 to A3.
  - Press the Delete key.



2. Entering Excel Formulas and Formatting Data

Perform Mathematical Calculations

- You can enter numbers and mathematical formulas into cells.
- Whether you enter a *number* or a *formula*, you can reference the cell when you perform mathematical calculations such as *addition, subtraction, multiplication, or division.*
- When entering a mathematical *formula*, **precede the formula with an equal sign.**

- Use the following to indicate the type of calculation you wish to perform:

  - + Addition
  - - Subtraction
  - * Multiplication
  - / Division
  - ^ Exponential

Addition

1. Type Add in cell A1.

Press Enter. Excel moves down one cell.

2. Type 1 in cell A2.

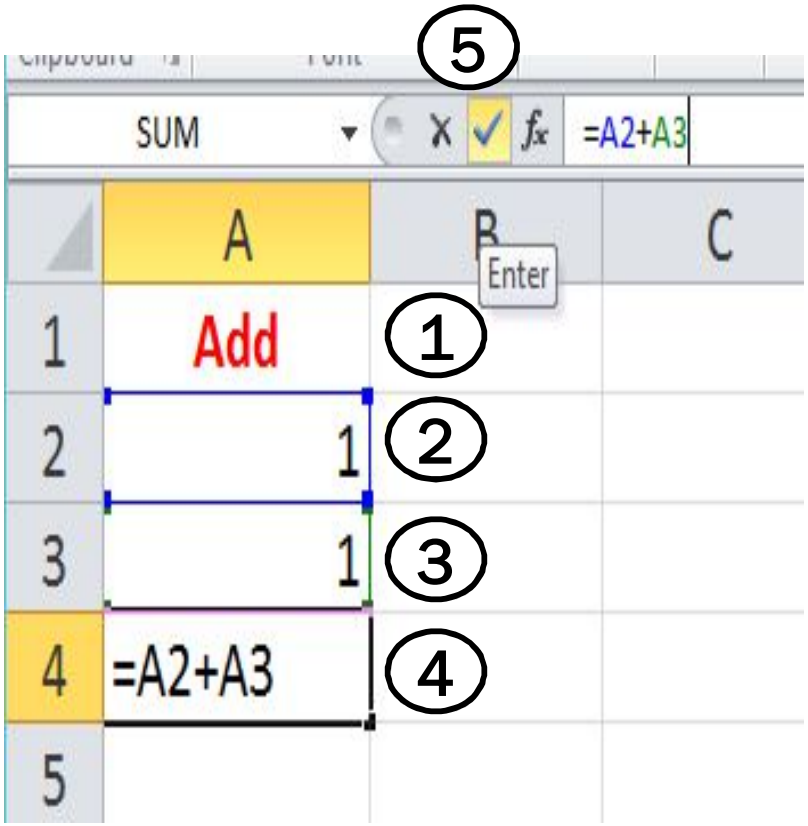
Press Enter. Excel moves down one cell.

3. Type 1 in cell A3.

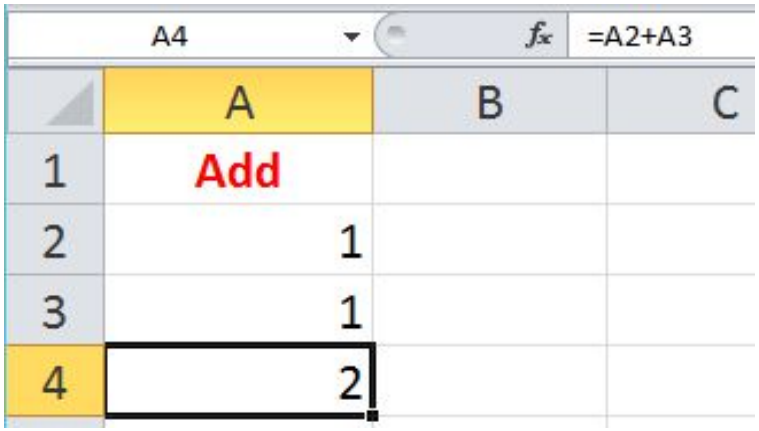
Press Enter. Excel moves down one cell.

4. Type =A2+A3 in cell A4.

5. Click the check mark on the Formula bar.



Excel adds cell A1 to cell A2 and displays the result in cell A4. The formula displays on the Formula bar.



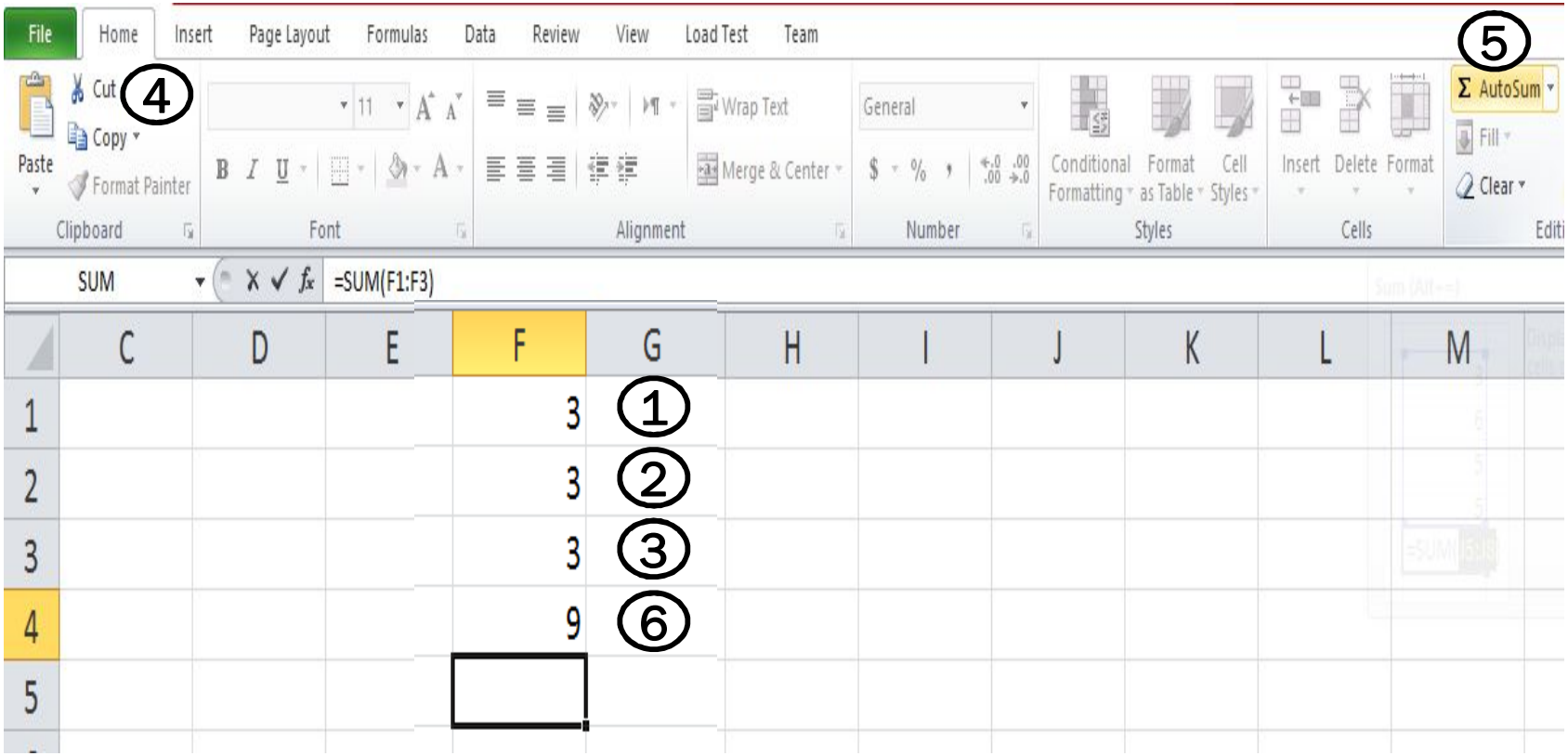
Note: Clicking the check mark on the Formula bar is similar to pressing Enter. Excel records your entry but does not move to the next cell.

AutoSum 

- When you press the AutoSum button on the Home Tab, Excel selects the numbers it thinks you want to add.
- If you then click the check mark on the Formula bar or press the Enter key, Excel adds the numbers.
- You can select the cells you want.

Exercise

5. Click the AutoSum button in the Editing group on the Home tab. Excel selects cells F1 through F3 and inserts a formula in cell F4.
6. Press Enter. Excel moves down one cell to cell F4.



Perform Automatic Calculations

- By default, Microsoft Excel recalculates the worksheet as you change cell entries. This makes it easy for you to correct mistakes and analyze a variety of scenarios.

Align Cell Entries

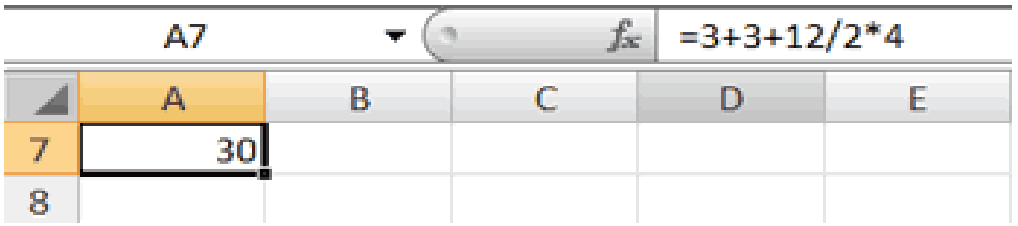
- When you type **text** into a cell, by default your entry aligns with the left side of the cell.
- When you type **numbers** into a cell, by default your entry aligns with the right side of the cell.
- You can change the cell alignment. You can center, left-align, or right-align any cell entry.
- Look at cells A1 to D1. Note that they are aligned with the *left side* of the cell.

	A	B	C	D
1	Add	Subtract	Multiply	Divide
2	2	8	4	12

Perform Advanced Mathematical Calculations

- When you perform mathematical calculations in Excel, be careful of precedence.
- Calculations are performed from left to right, with multiplication and division performed before addition and subtraction.

Advanced Calculations

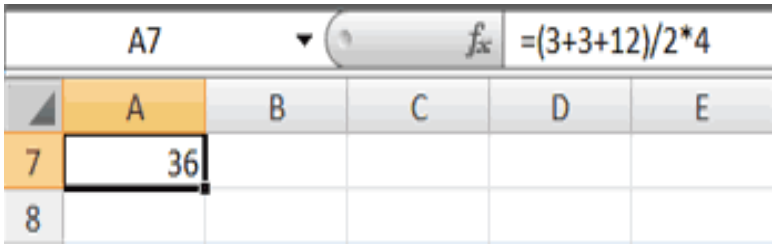


1. Move to cell A7.
2. Type **=3+3+12/2*4**.
3. Press Enter.

- **Note:** Microsoft Excel divides 12 by 2, multiplies the answer by 4, adds 3, and then adds another 3. The answer, 30, displays in cell A7.

- To change the order of calculation, use parentheses. Microsoft Excel calculates the information in parentheses first.

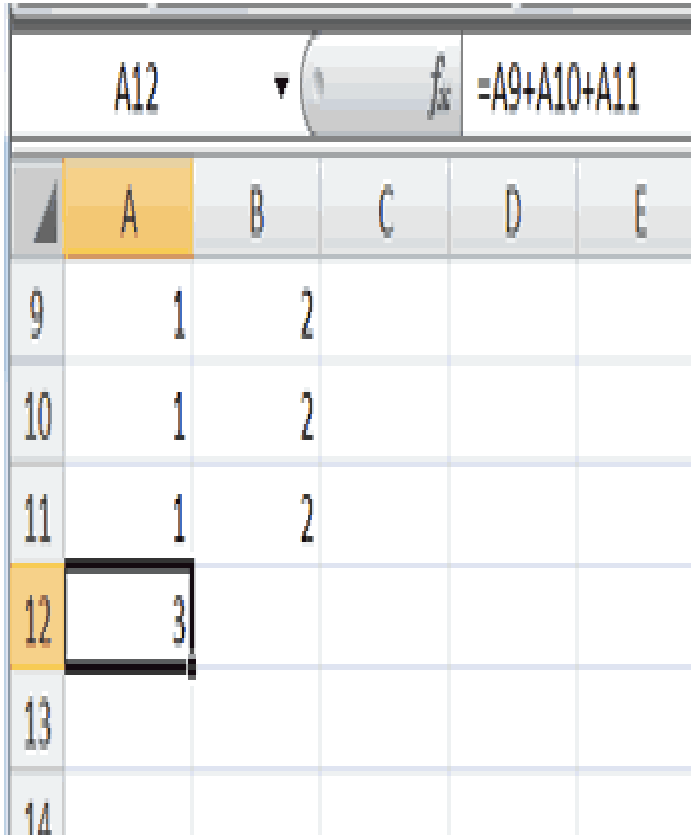
1. Double-click in cell A7.
2. Edit the cell to read =(3+3+12)/2*4.
3. Press Enter.



- **Note**: Microsoft Excel adds 3 plus 3 plus 12, divides the answer by 2, and then multiplies the result by 4. The answer, 36, displays in cell A7.

℘ Copying Formulas from cell to another

1. Move to cell A12 then type =
2. Use the up arrow key to move to cell A9 then type +
   - Use the up arrow key to move to cell A10 then type +
   - Use the up arrow key to move to cell A11.
3. Click the check mark on the Formula bar. Look at the Formula bar. Note that the formula you entered is displayed there.

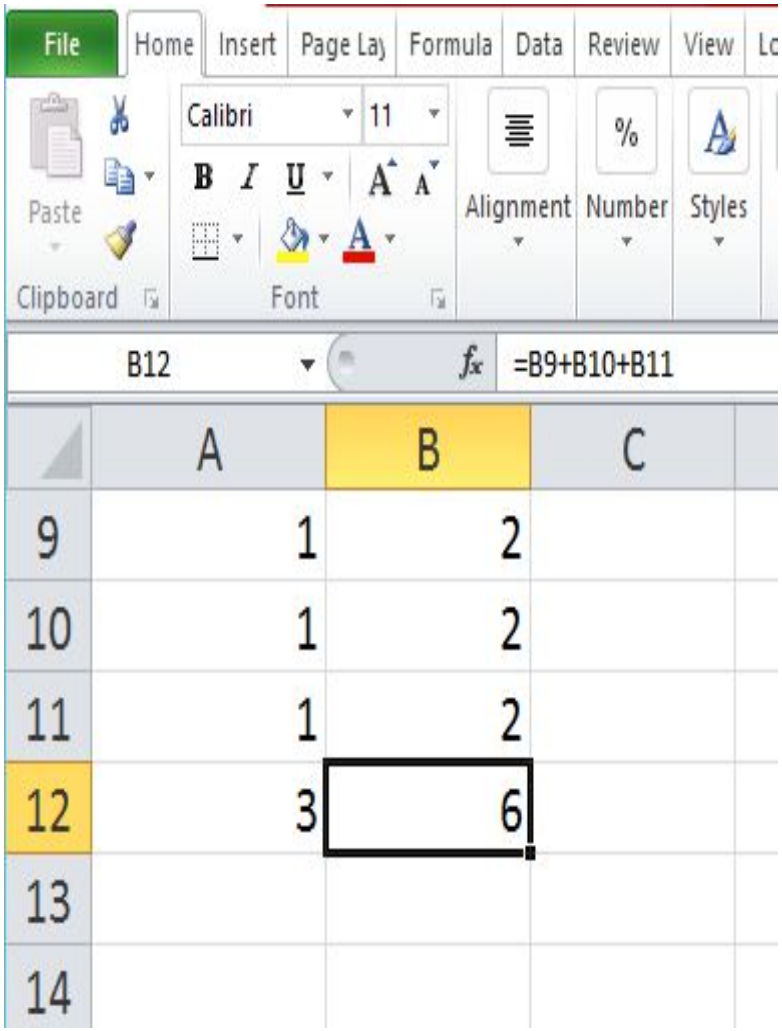


4. Go to cell A12 then press Ctrl+C then go to cell B12 and press Ctrl+V

5. Compare the formula in cell A12 with the formula in cell B12 (while in the respective cell, look at the Formula bar).

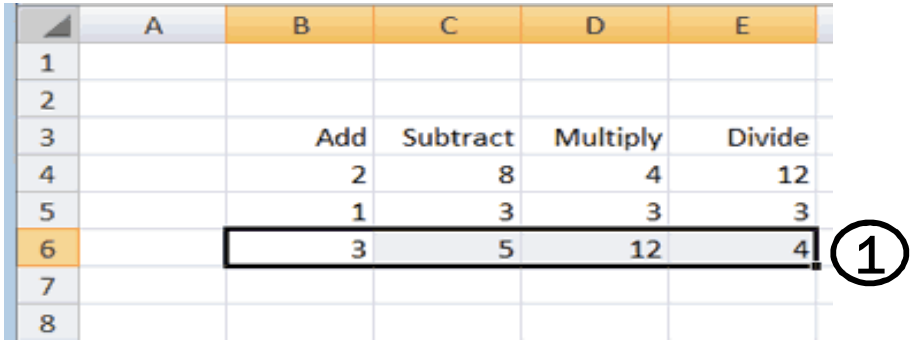
6. The formulas are the same except that the formula in cell A12 sums the entries in column A and the formula in cell B12 sums the entries in column B.

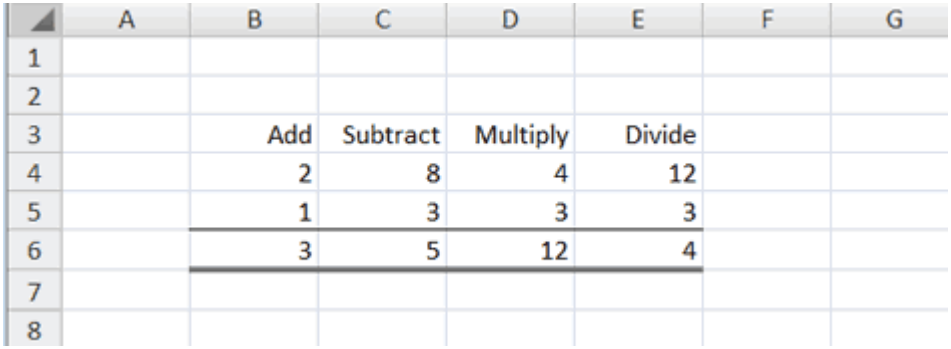
7. The formula was copied in a *relative* fashion.

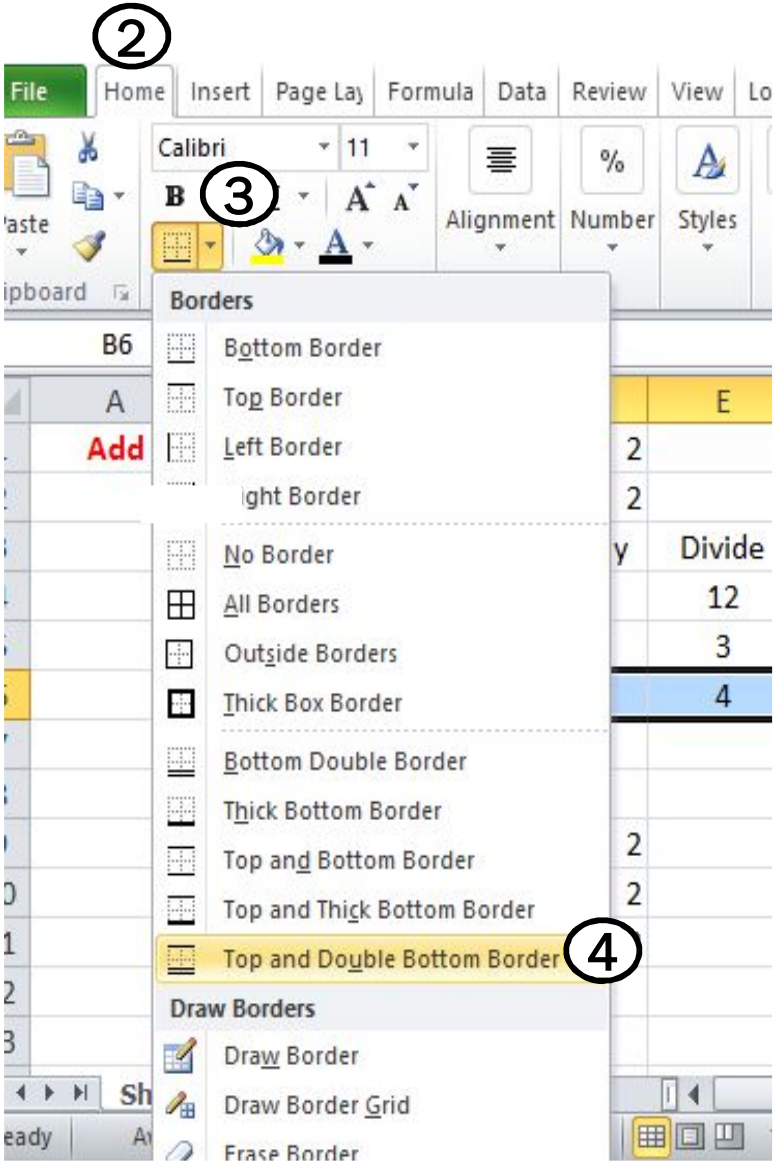


Create Borders

1. Select cells B6 to E6.
2. Choose the Home tab.
3. Click the down arrow next to the Borders button 
4. Click Top and Double Bottom Border.

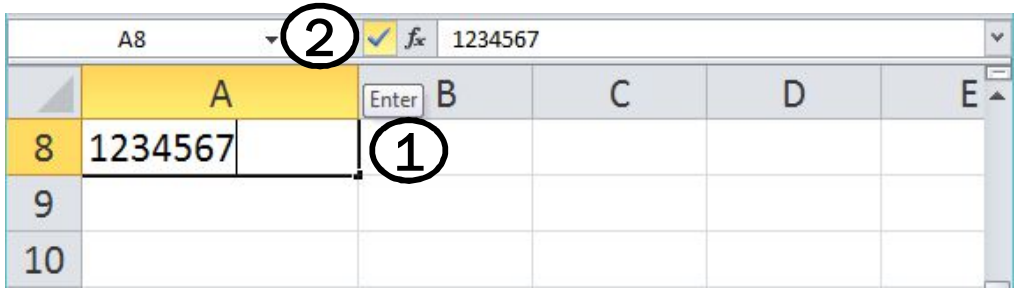


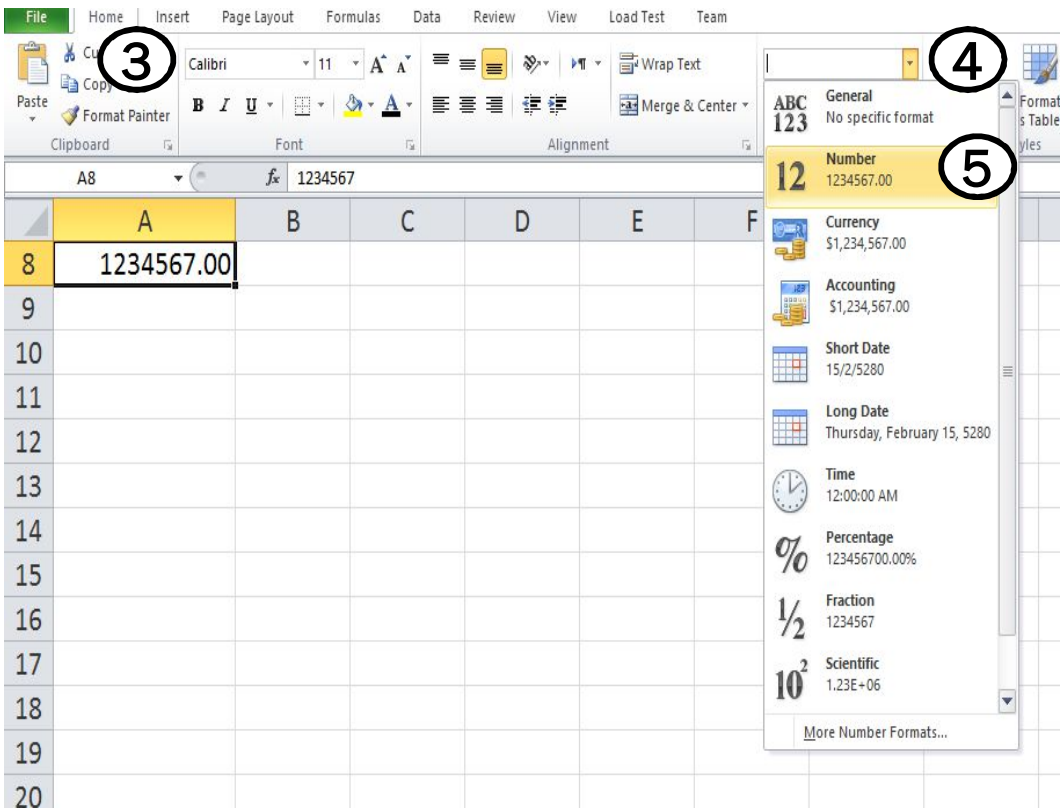




Format Numbers

- By adding commas to separate thousands, specify the number of decimal places, place a dollar sign in front of a number, or display a number as a percent.





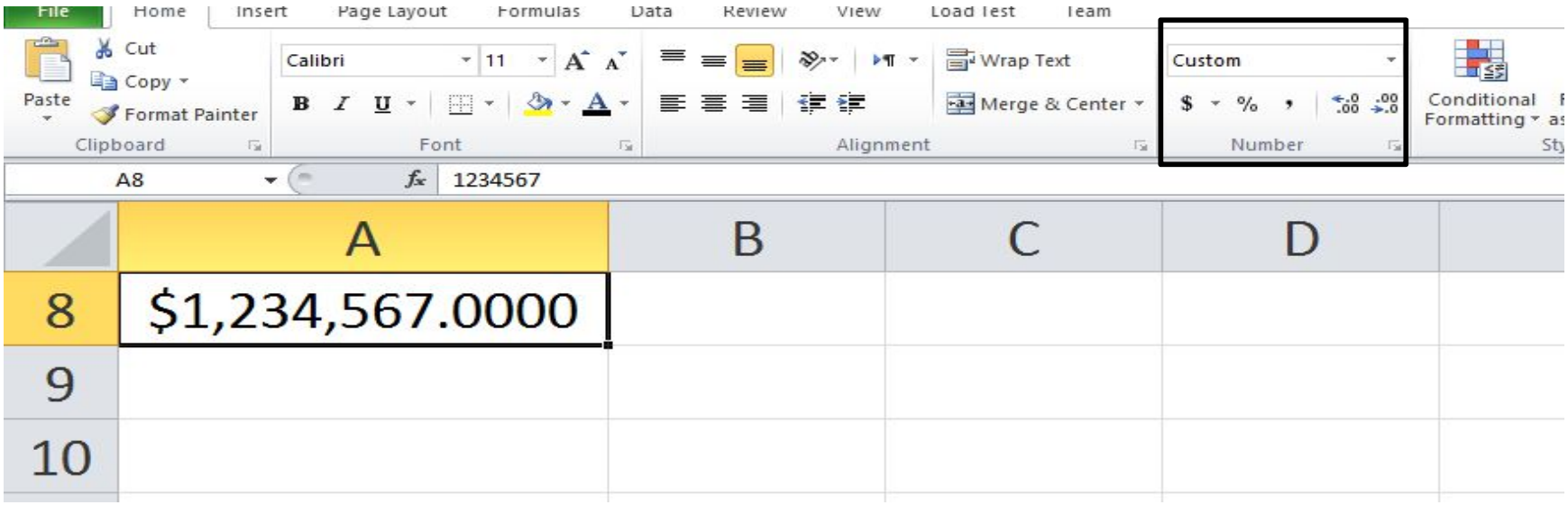
1. Move to cell A8. Type **1234567**.
2. Click the check mark on the Formula bar.
3. Choose the Home tab.
4. Click the down arrow next to the Number Format box.
5. Click Number. Excel adds two decimal places to the number you typed.

6. Click the Comma Style button .

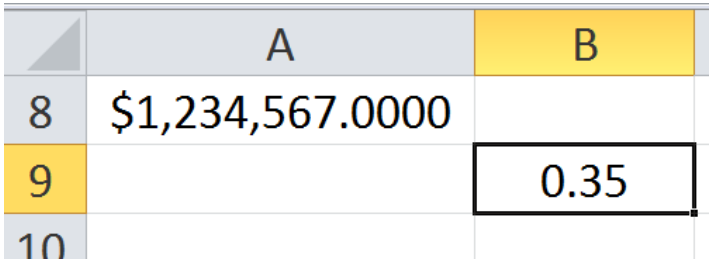
7. Click the Accounting Number Format button . 

8. Click twice on the Increase Decimal button to change the number format to four decimal places.

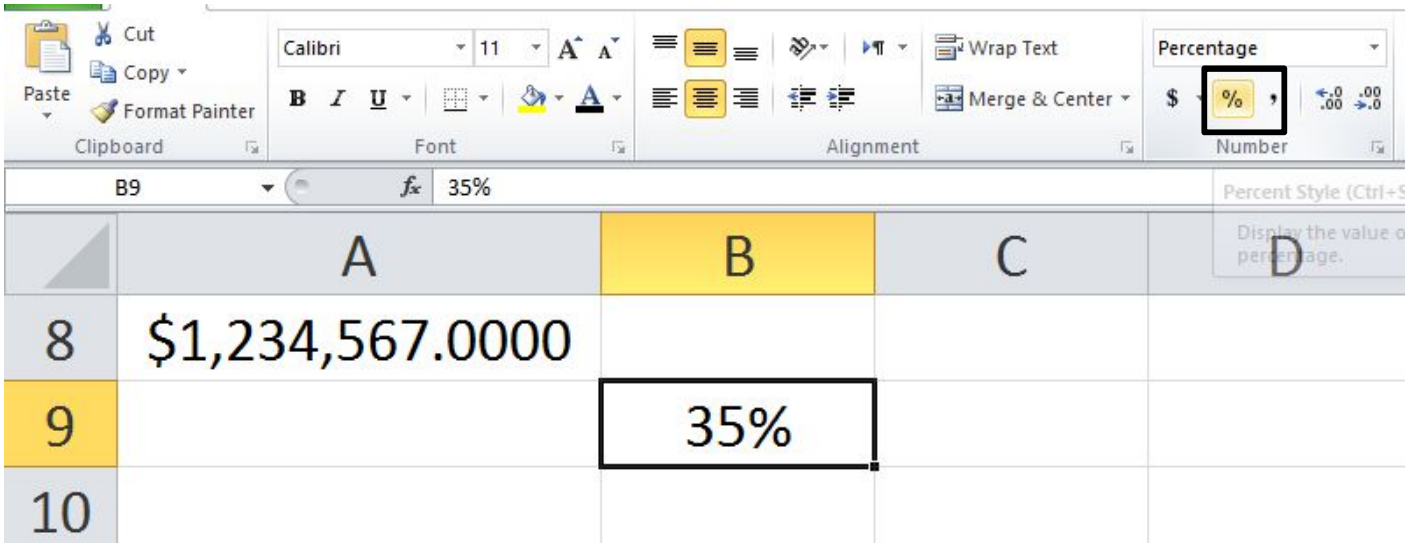
9. Click the Decrease Decimal button if you wish to decrease the number of decimal places. 



Change a decimal to a percent.

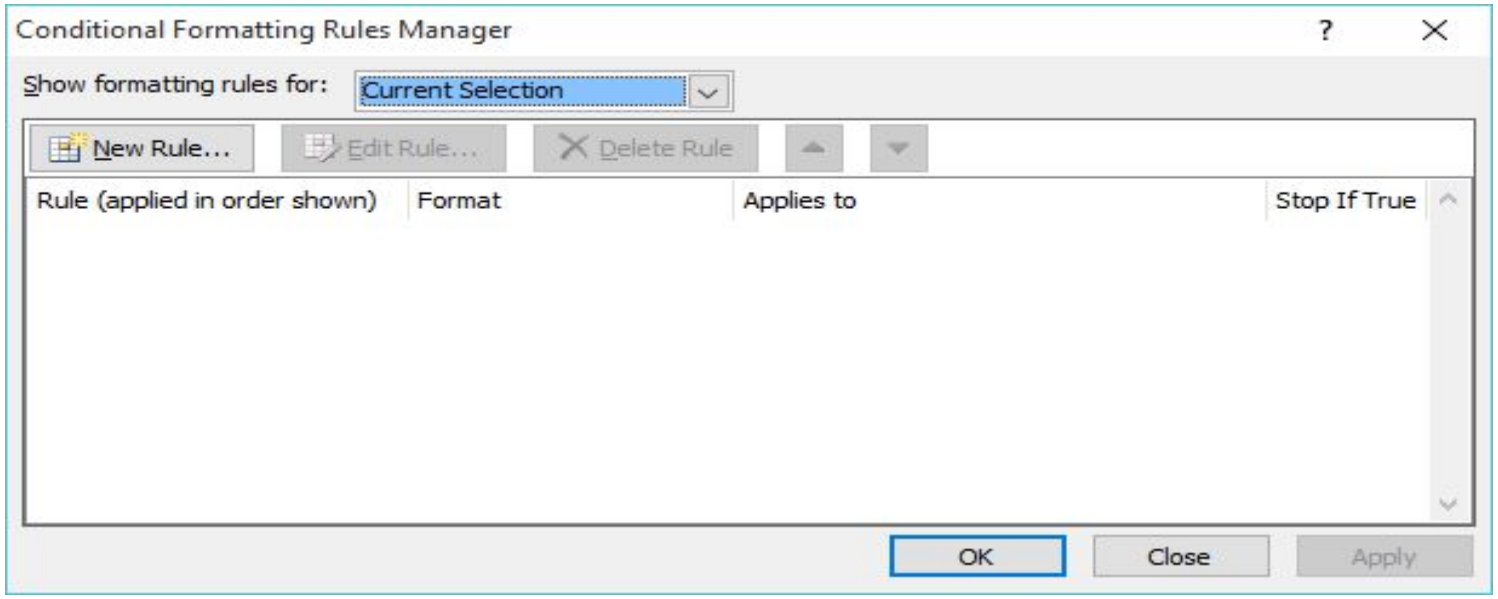


1. Move to cell B9.
2. Type **.35** (note the decimal point).
3. Click the check mark on the formula bar.
4. Choose the Home tab. %
5. Click the Percent Style button . Excel turns the decimal to a percent



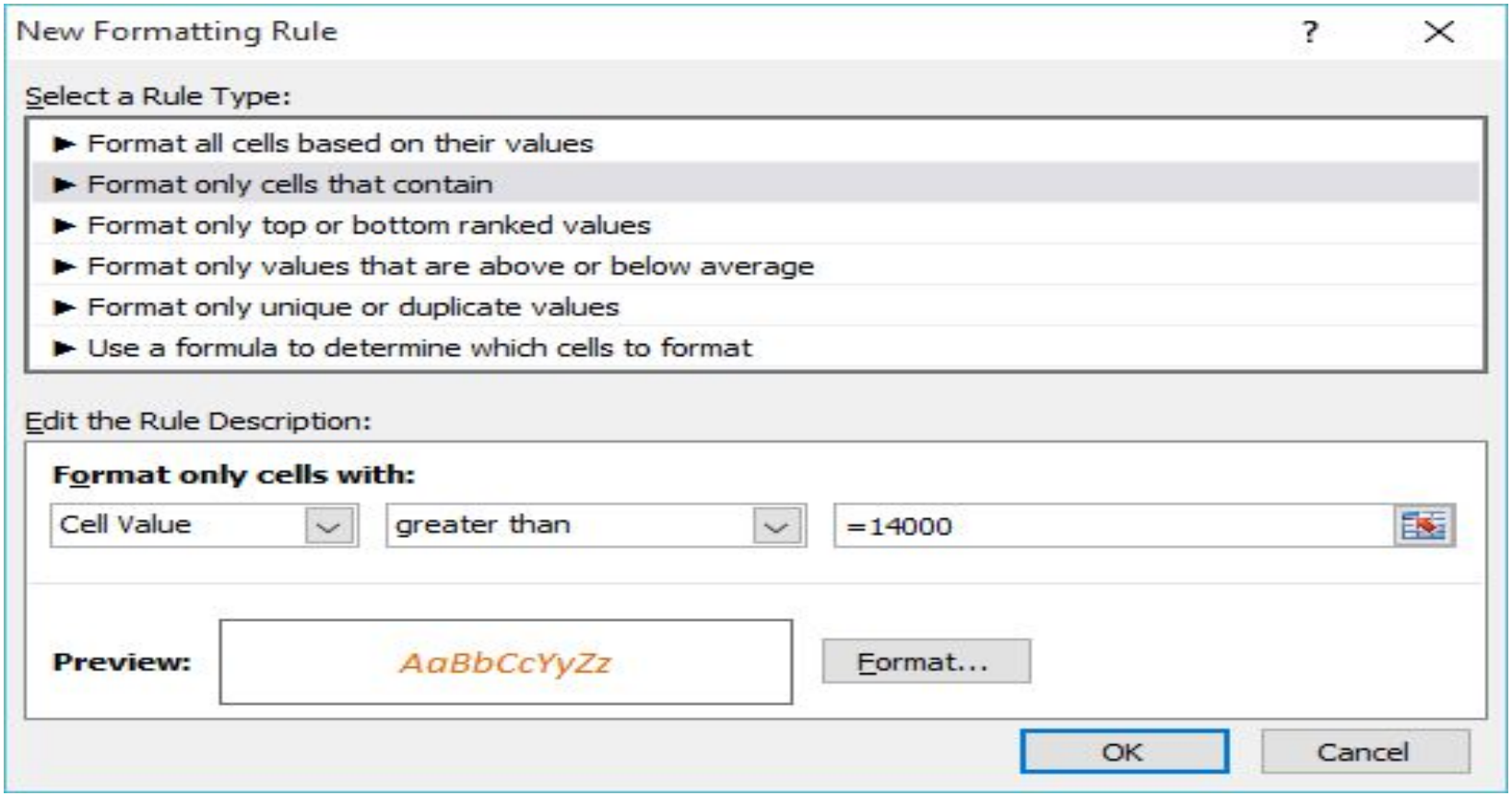
Create Conditional Format

- You could create conditional formats to highlight cells that contained values meeting a certain condition. For example, you could highlight all cells that contain a value over 100, contain a date before 1/28/2007, or contain an order amount between $100 and $500.
- The **Home** tab and then, in the **Styles** group, click **Conditional Formatting**. From the menu that appears, click **Manage Rules** to display the Conditional Formatting Rules Manager.



Create Conditional Format

- By clicking new rule , choose the rule type then click the Format button to display the Format Cells dialog box. After you define your format, click OK.



Create Conditional Format

- Office Excel 2010 also enables you to create three new types of conditional formats: Data bars, color scales, and icon sets.

Distribution Capacity

Northeast	47%
Atlantic	75%
Southeast	39%
North Central	54%
Midwest	40%
Southwest	73%
Mountain West	51%
Northwest	69%
Central	41%

1

Distribution Capacity

Northeast	47%
Atlantic	75%
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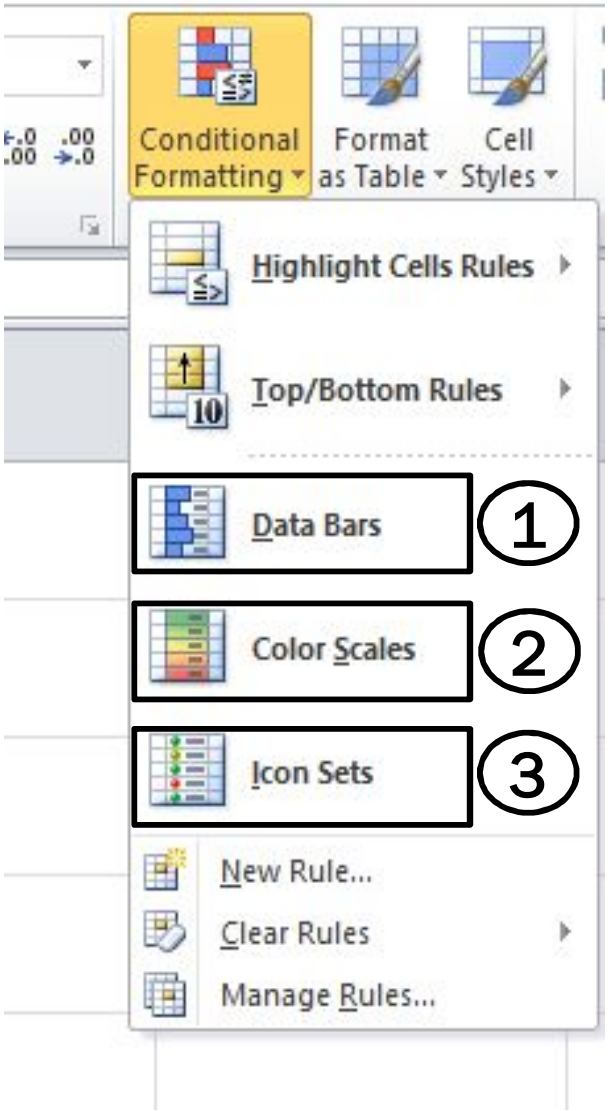
2

Distribution Capacity

Northeast	
Atlantic	
Southeast	
North Central	
Midwest	
Southwest	
Mountain West	
Northwest	
Central	

3



BREAK (10 Min.)

3. Creating Excel Functions, Filling Cells

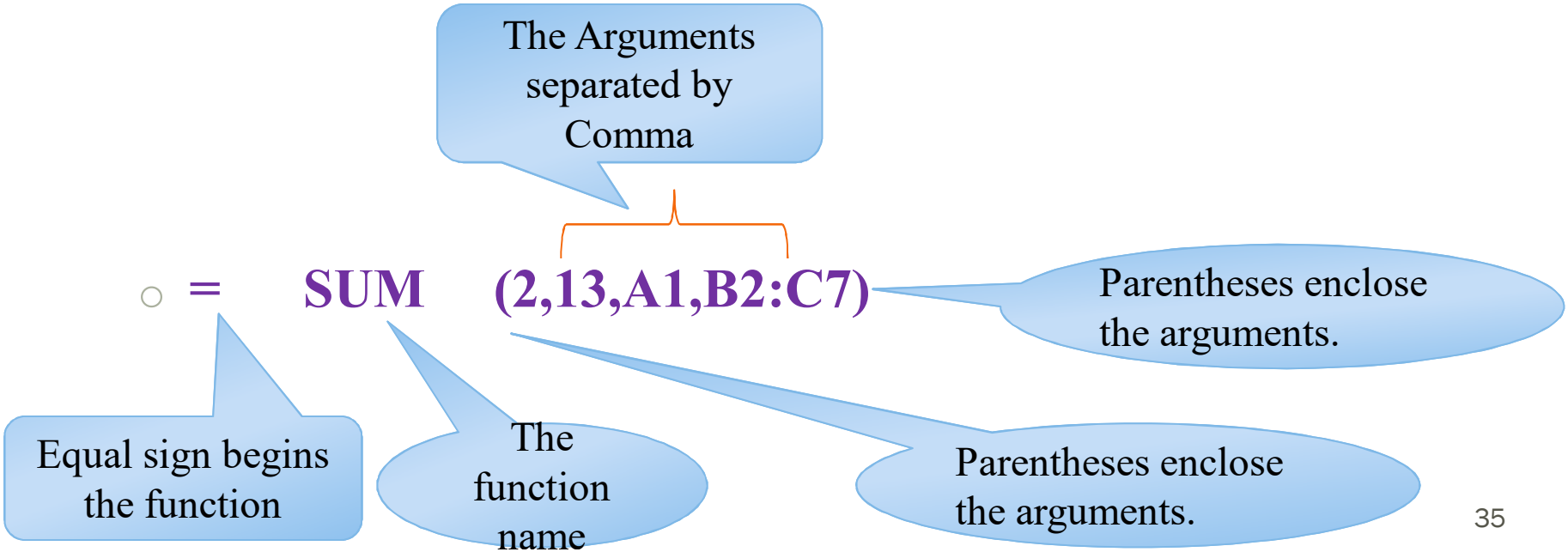
- **Reference Operators:**
  - Reference operators refer to a cell or a group of cells.
  - There are two types of reference operators: ***range*** and ***union***.
  - A range reference refers to all the cells between and including the reference.
    - The reference A1:A3 includes cells A1, A2, and A3.
    - The reference A1:C3 includes cells A1, A2, A3, B1, B2, B3, C1, C2, and C3.

Reference Operators (Cont.):

- A union reference consists of two or more numbers, range references, or cell addresses separated by a comma.
  - The reference A7,B8:B10,C9,10 refers to cells A7, B8 to B10, C9 and the number 10.

Functions

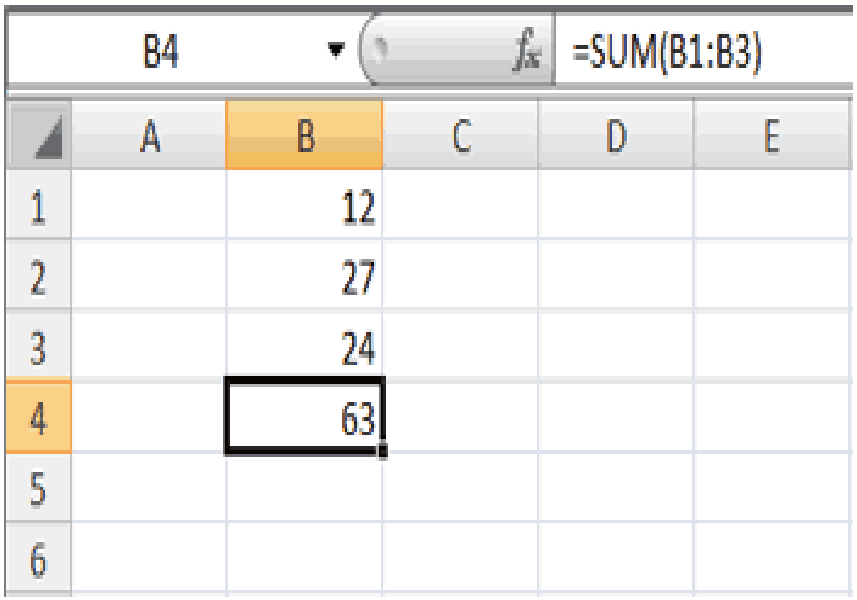
- Functions are prewritten formulas.
- When using a function, remember the following:
  - Use an equal sign to begin a formula.
  - Specify the function name.
  - Enclose arguments within parentheses.
  - Use a comma to separate arguments.



Example 1: SUM

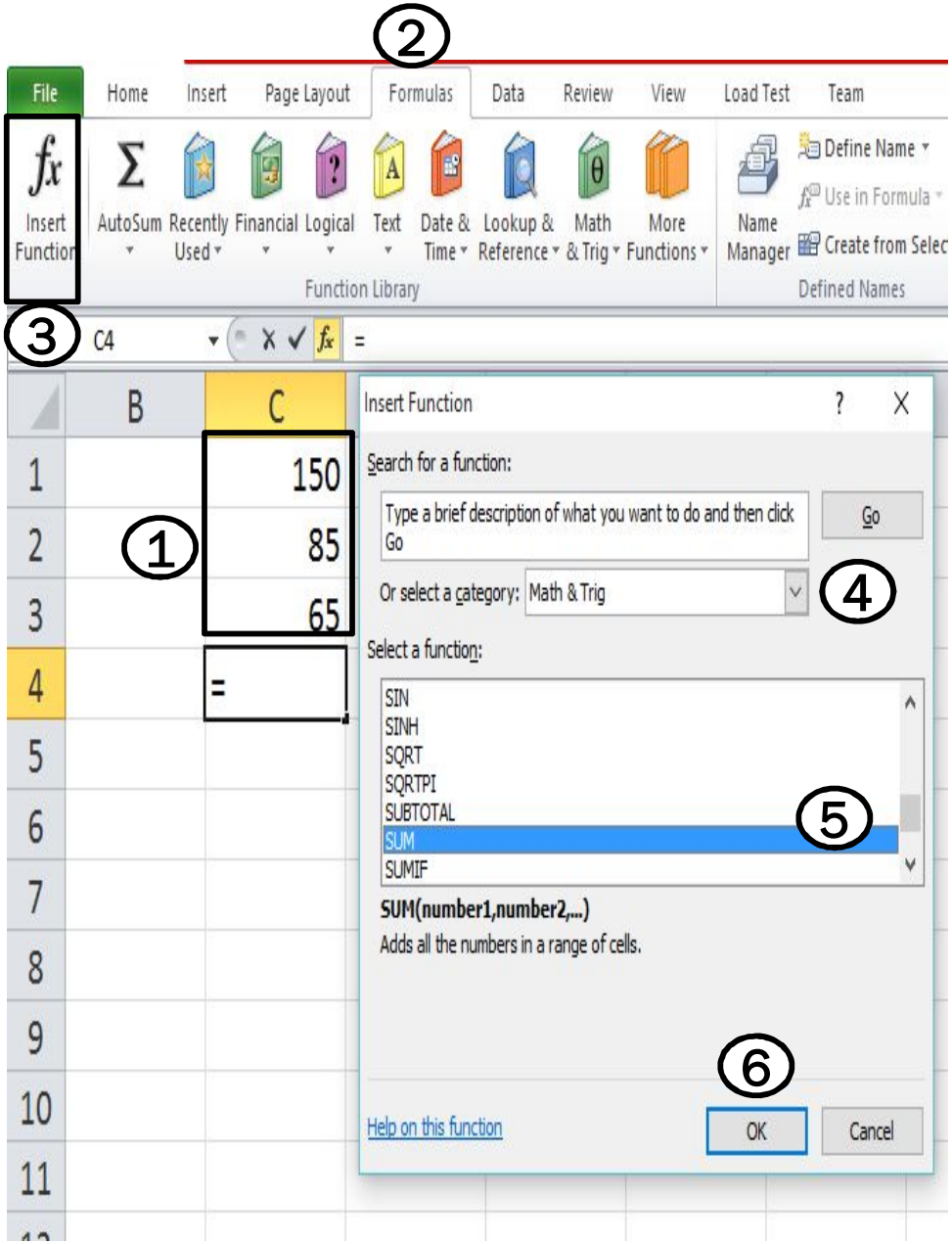
- The SUM function adds argument values.

1. Open Microsoft Excel.
2. Type **12** in cell B1.
3. Press Enter.
4. Type **27** in cell B2.
5. Press Enter.
6. Type **24** in cell B3.
7. Press Enter.
8. Type **=SUM(B1:B3)** in cell A4.
9. Press Enter. The sum of cells B1 to B3, which is 63, appears.



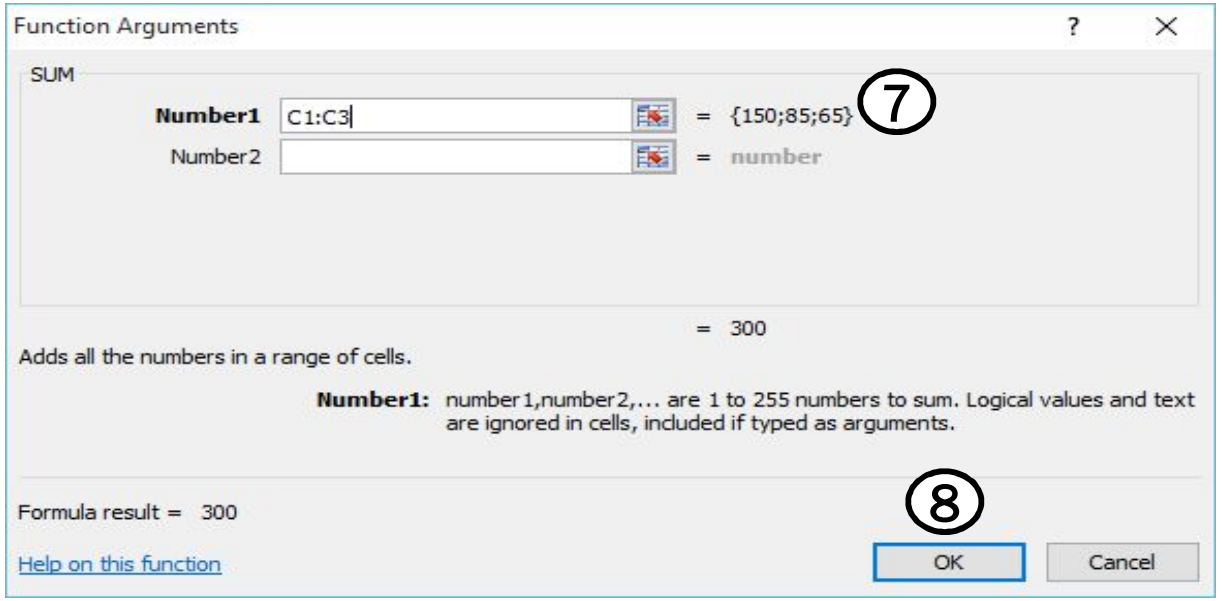
Example 2: Alternate Method: Enter a Function with the Ribbon

1. Type **150, 85 and 65** in cells C1, C2 and C3 respectively.
2. Choose the Formulas tab.
3. Click the Insert Function button.
4. Choose Math & Trig in the Or Select A Category box.
5. Click Sum in the Select A Function box.
6. Click OK. The Function Arguments dialog box appears.



7. Type **C1:C3** in the Number1 field, if it does not automatically appear.

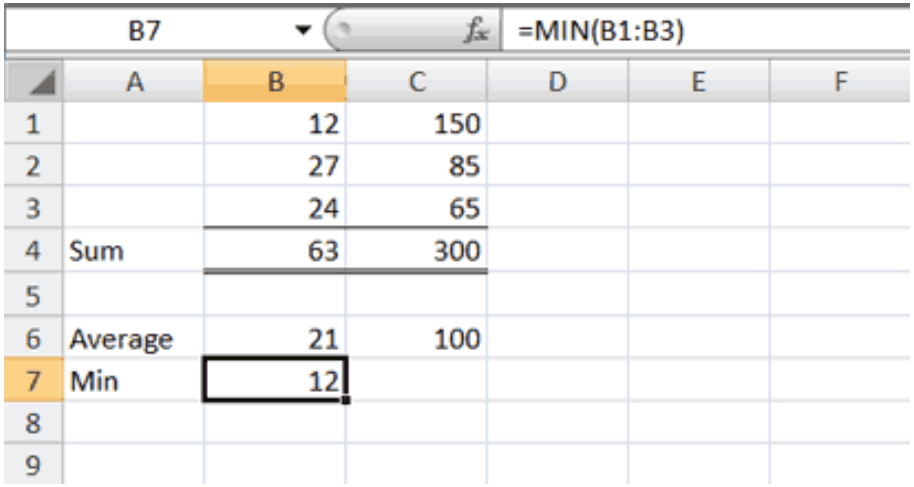
8. Click OK. The sum of cells C1 to C3, which is 300, appears.



Exercise 1: Find the Lowest Number

- You can use the MIN function to find the lowest number in a series of numbers.

1. Move to cell A7.
2. Type **Min**.
3. Press the right arrow key to move to cell B7.
4. Type = **MIN(B1:B3)**.
5. Press Enter.



The lowest number in the series, which is 12, appears.

- **Note:** You can also use the drop-down button next to AutoSum button to calculate minimums, maximums, and counts. 
- **Note:** Other Functions, Max, Count, Average.

Exercise 2: Fill Cells Automatically

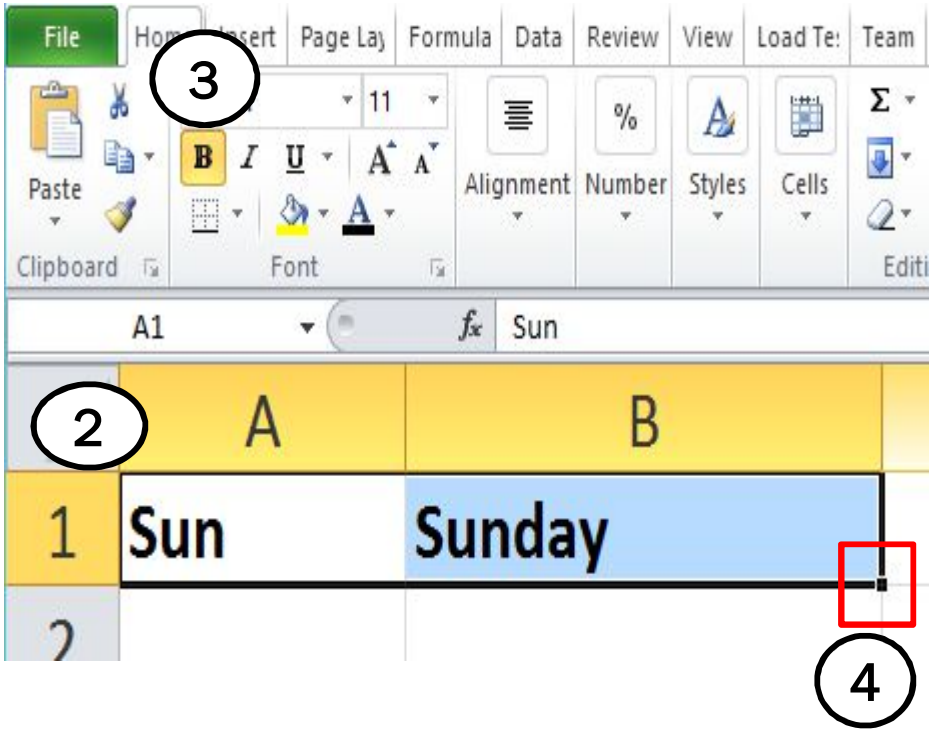
- The following demonstrates filling the days of the week:

1. Click the Sheet2 tab. Excel moves to Sheet2.

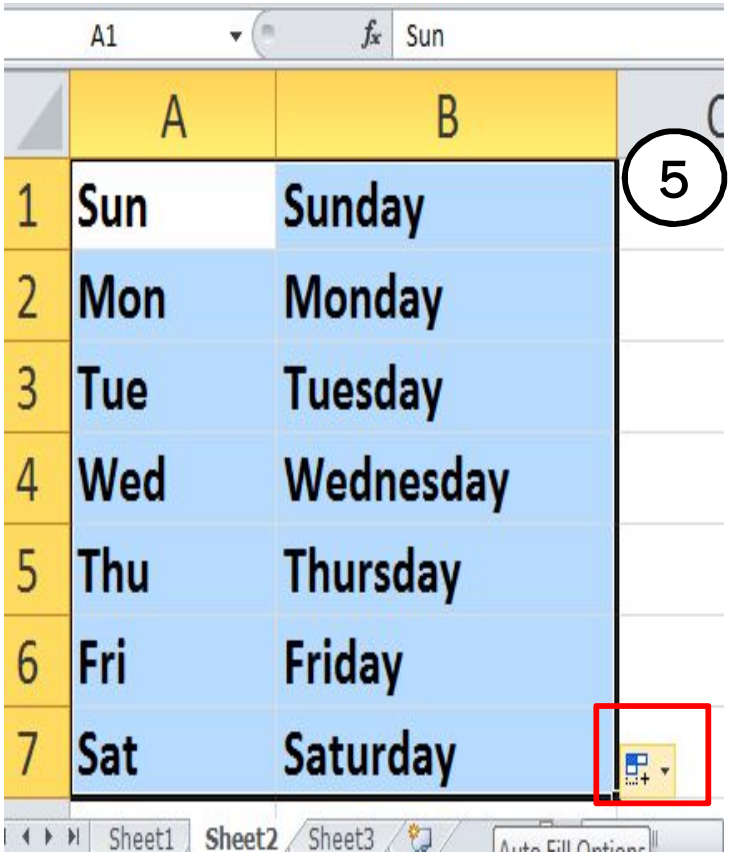
2. Type **Sun and Sunday in** cells A1 and B1, then Select them.

3. Choose the Home tab.
Click the **Bold** button . Excel bolds cells A1 to B1.

4. Find the small black square in the lower-right corner of the selected area. The small black square is called the fill handle.

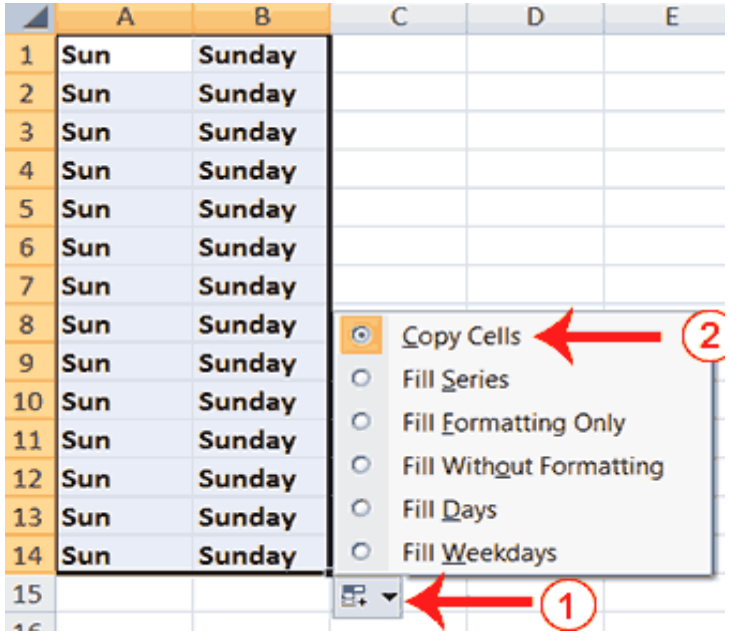


5. Grab the fill handle and drag with your mouse to fill cells A1 to B14. Note how the days of the week fill the cells in a series. Also, note that the Auto Fill Options button appears.

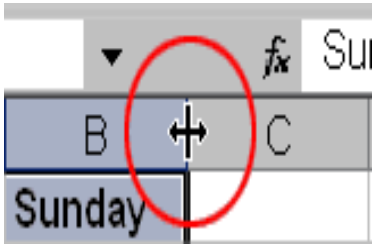


Copy Cells

Click the Auto Fill Options button.	
Copy Cells	The entry in cells A1 and B1 are copied to all the highlighted cells.
Fill Series	The cells fill as a series from Sunday to Saturday again.
Fill Without Formatting	The cells fill as a series from Sunday to Saturday, but the entries are not bolded.
Fill Weekdays	The cells fill as a series from Monday to Friday.



Adjust Column Width



1. Move your mouse pointer over the line that separates column B and C. The Width Indicator appears.
2. Double-click. The Column adjusts to fit the longest entry.

- After you complete the remainder of the exercise, your worksheet will look like the one shown here.

	A	B	C	D	E	F
1	Sun	Sunday	1:00:00 AM	1	Lesson 1	
2	Mon	Monday	2:00:00 AM	2	Lesson 2	
3	Tue	Tuesday	3:00:00 AM	3	Lesson 3	
4	Wed	Wednesday	4:00:00 AM	4	Lesson 4	
5	Thu	Thursday	5:00:00 AM	5	Lesson 5	
6	Fri	Friday	6:00:00 AM	6	Lesson 6	
7	Mon	Monday	7:00:00 AM	7	Lesson 7	
8	Tue	Tuesday	8:00:00 AM	8	Lesson 8	
9	Wed	Wednesday	9:00:00 AM	9	Lesson 9	
10	Thu	Thursday	10:00:00 AM	10	Lesson 10	
11	Fri	Friday	11:00:00 AM	11	Lesson 11	
12	Mon	Monday	12:00:00 PM	12	Lesson 12	
13	Tue	Tuesday	1:00:00 PM	13	Lesson 13	
14	Wed	Wednesday	2:00:00 PM	14	Lesson 14	
15						

Fill Times

1. Type 1:00 into cell C1.
2. Grab the fill handle and drag with your mouse to highlight cells C1 to C14. Note that each cell fills, using military time.
3. Press Esc and then click anywhere on the worksheet to remove the highlighting.

Change Time Format

1. Select cells C1 to C14.
2. Choose the Home tab.
3. Click the down arrow next to the number format box . A menu appears.
4. Click Time. Excel changes the format of the time.

Fill Numbers

Type a 1 in cell D1.

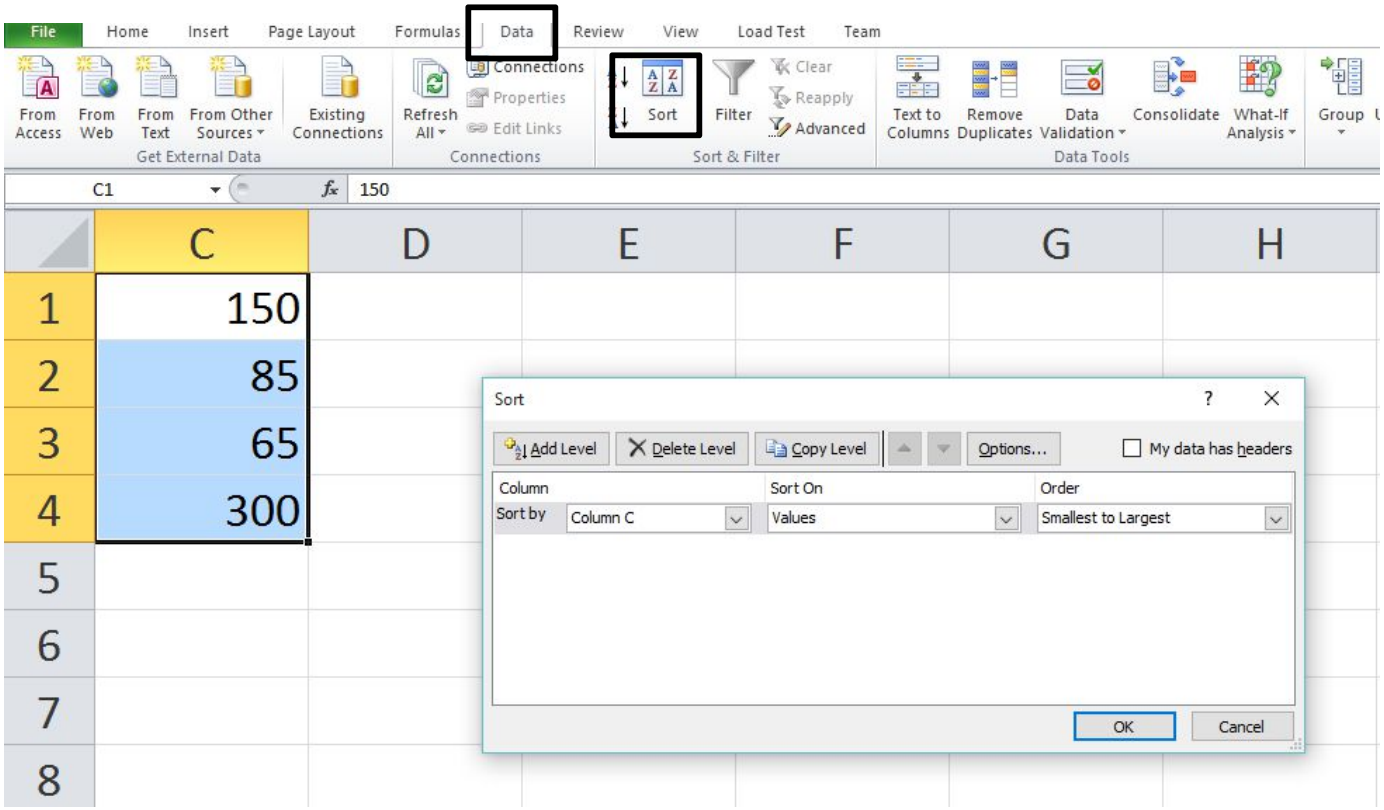
1. Grab the fill handle and drag with your mouse to highlight cells D1 to D14. The number 1 fills each cell.
2. Click the Auto Fill Options button.
3. Choose the Fill Series radio button. The cells fill as a series, starting with 1, 2, 3.

- Here is another interesting fill feature.

1. Go to cell E1.
2. Type Lesson 1.
3. Grab the fill handle and drag with your mouse to highlight cells E1 to E14. The cells fill in as a series: Lesson 1, Lesson 2, Lesson 3, and so on.

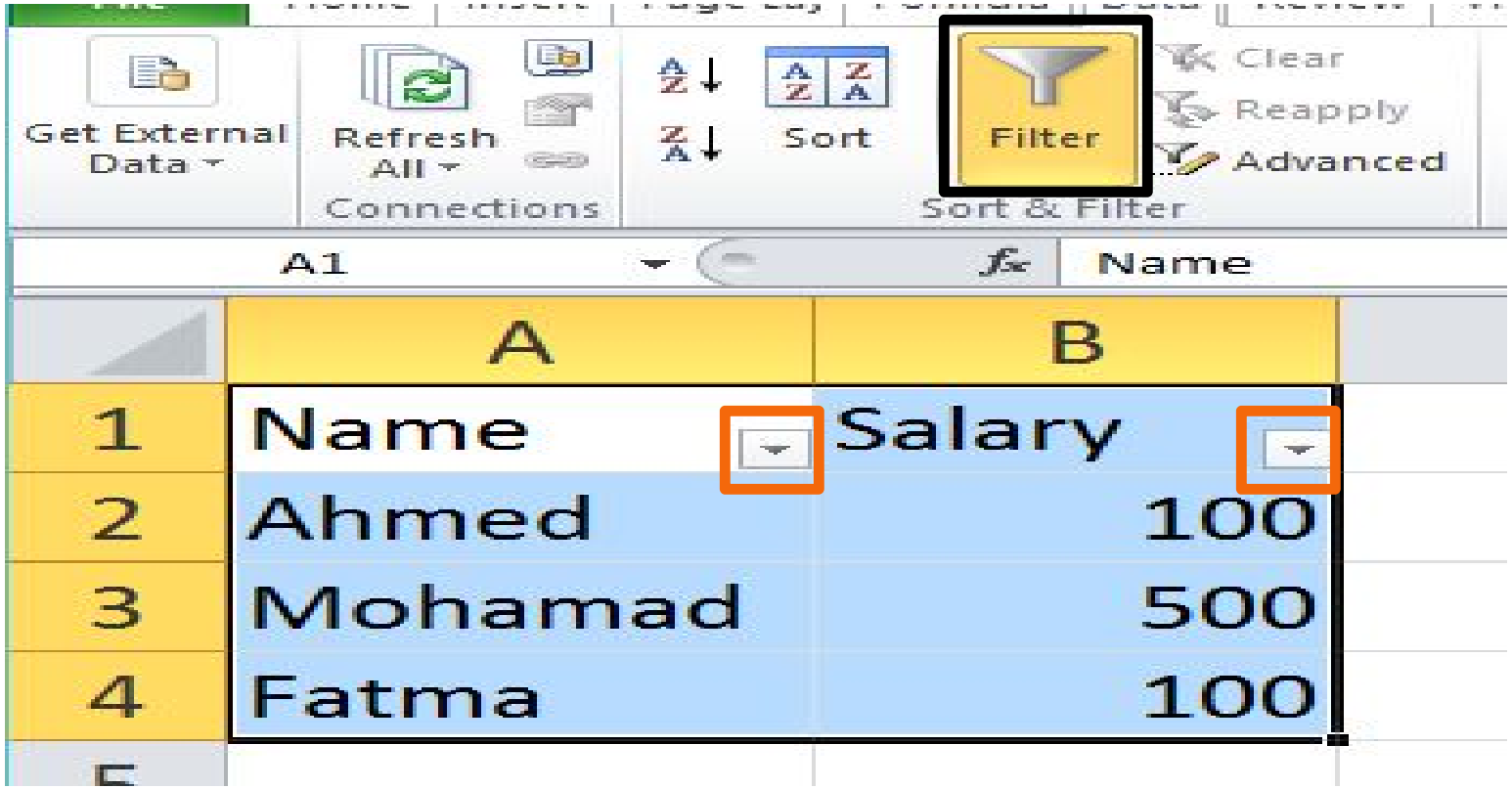
∞ Sorting Data

1. Select Data to sort
2. Click on the sort button
3. Choose to sort by which column and in which directions.



Data filtering

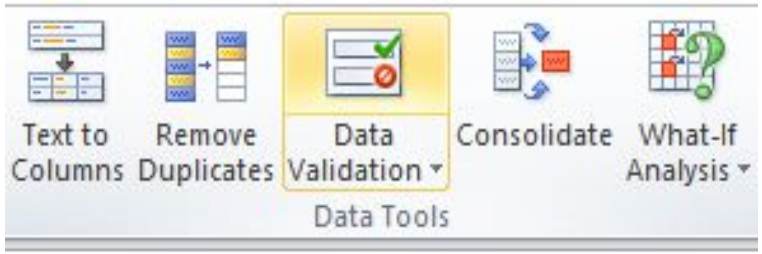
1. The data filter option allows users to select specific data to view only
2. Click on the filter button
3. The column head changes to drop down to filter data with it

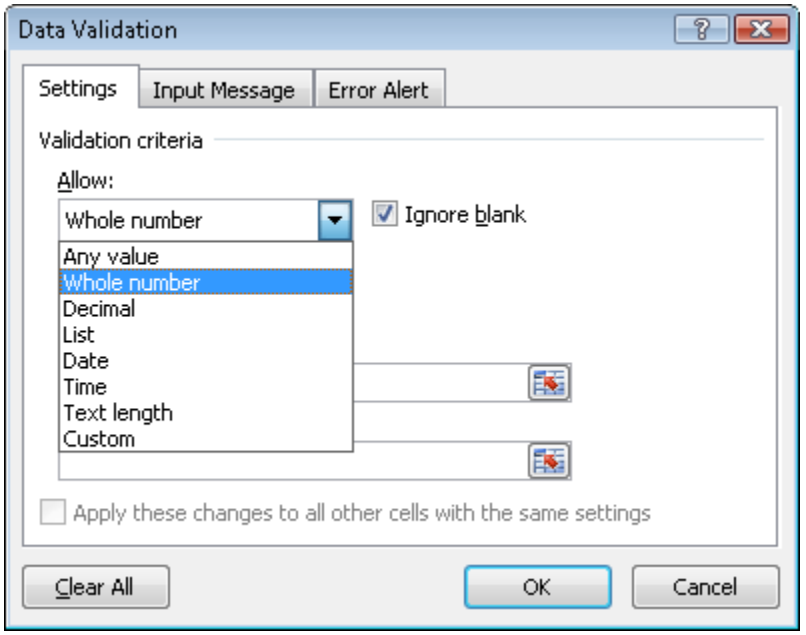


℘ Data validation is useful to :

1. Restrict data to predefined items in a list (values are separated by commas or semicolons or might be selected from other cells)
2. Restrict numbers outside a specified range
3. Restrict dates outside a certain date frame
4. Restrict times outside a certain time frame
5. Limit the number of text characters
6. Validate data based on formulas or values in other cells

"Data" Tab

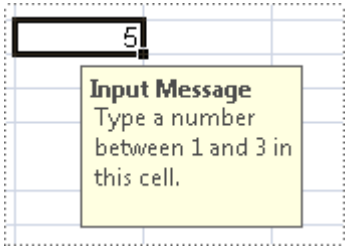


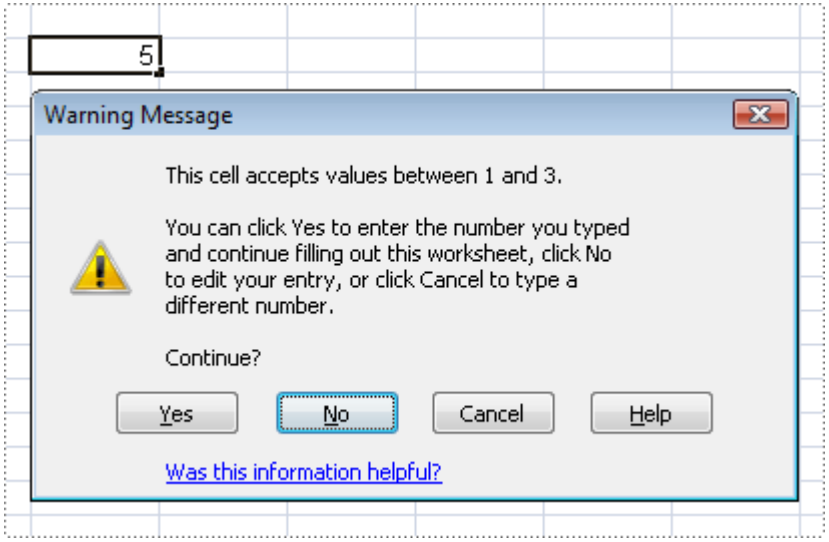


Data validation Messages and Alerts

You can choose from three types of error alerts:

ICO	TYPE	USE TO
	Stop	Prevent users from entering invalid data in a cell. A **Stop** alert message has two options: Retry or **Cancel**.
	Warning	Warn users that the data they entered is invalid, without preventing them from entering it. When a **Warning** alert message appears, users can click **Yes** to accept the invalid entry, **No** to edit the invalid entry, or **Cancel** to remove the invalid entry.
	Information	Inform users that the data they entered is invalid, without preventing them from entering it. This type of error alert is the most flexible. When an **Information** alert message appears, users can click **OK** to accept the invalid value or **Cancel** to reject it.



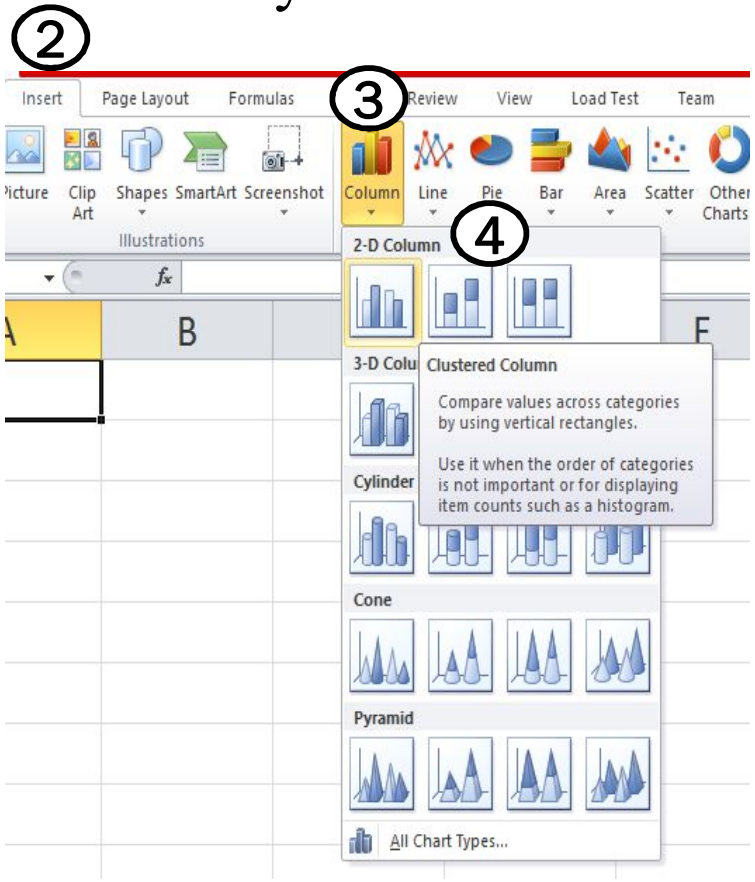


4. Creating Charts

Create a Column Chart

- start by creating the worksheet below exactly as shown.

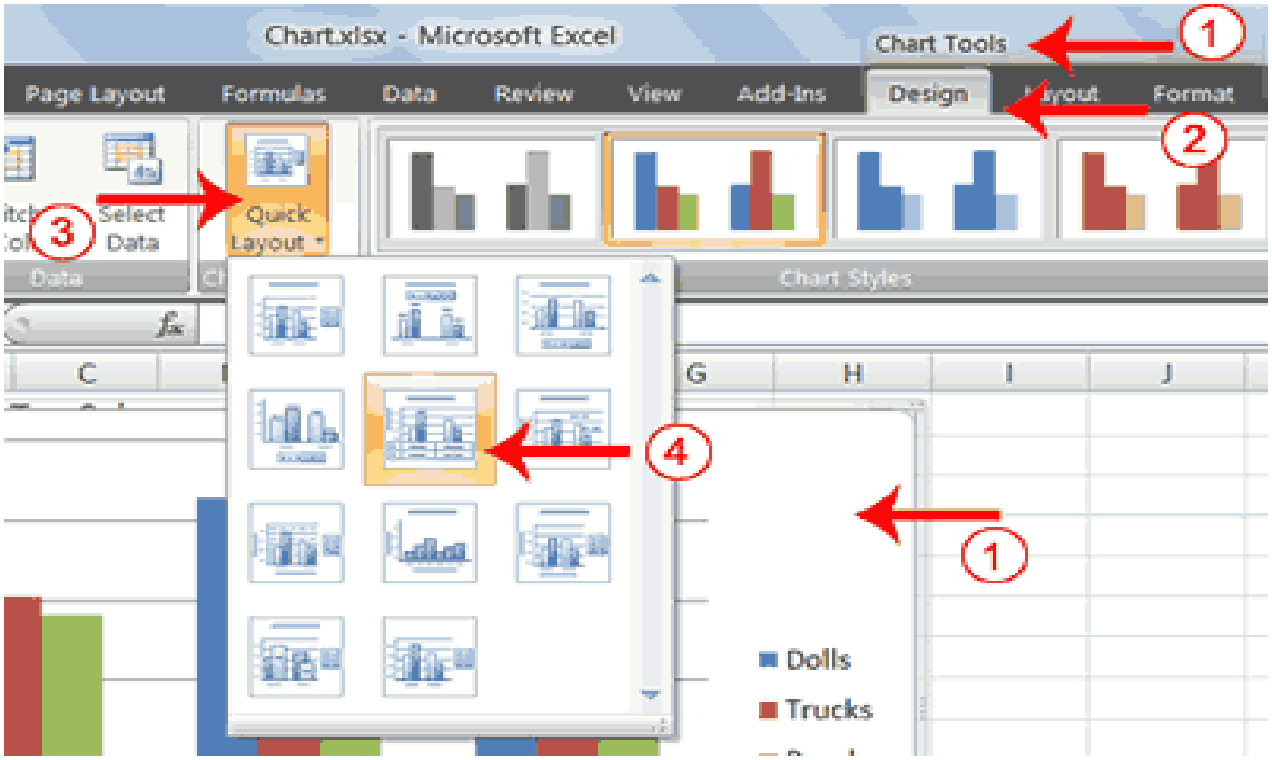
	A	B	C	D	E
1		Toy Sales			
2					
3	Products	Region 1	Region 2	Region 3	
4	Dolls	2478	2640	2388	
5	Trucks	2031	2173	2790	
6	Puzzles	1918	2722	2795	
7	Total	6427	7535	7973	
8					



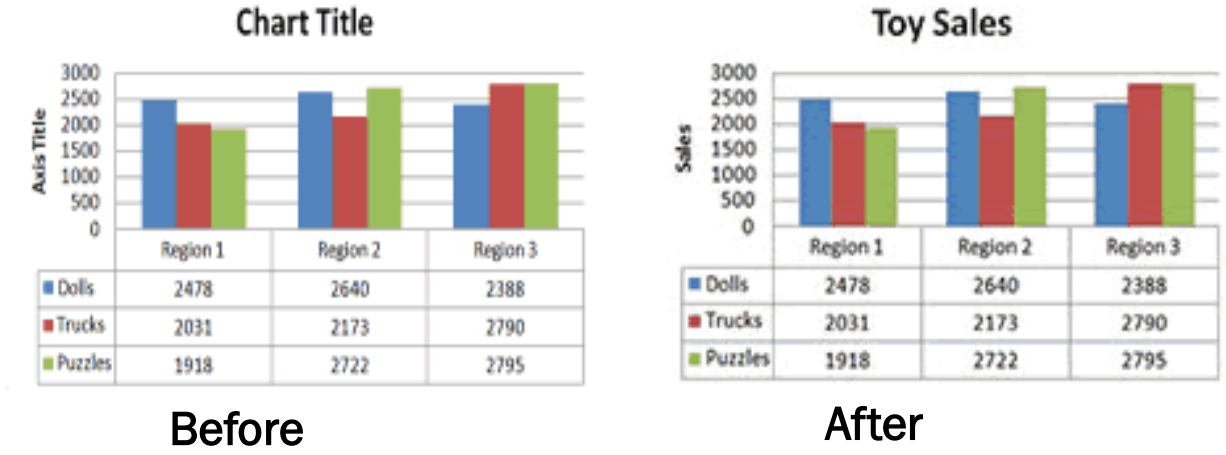
1. Select cells A3 to D6.
2. Choose the Insert tab.
3. Click Column button in Charts group
4. Click Clustered Column chart sub-type. Excel creates a Clustered Column chart and Chart Tools context tabs appear.

Apply Chart Layout

1. Click your chart. The Chart Tools become available.
2. Choose the Design tab.
3. Click the Quick Layout button in the Chart Layout group. A list of chart layouts appears.
4. Click Layout 5. Excel applies the layout to your chart.



Add Labels

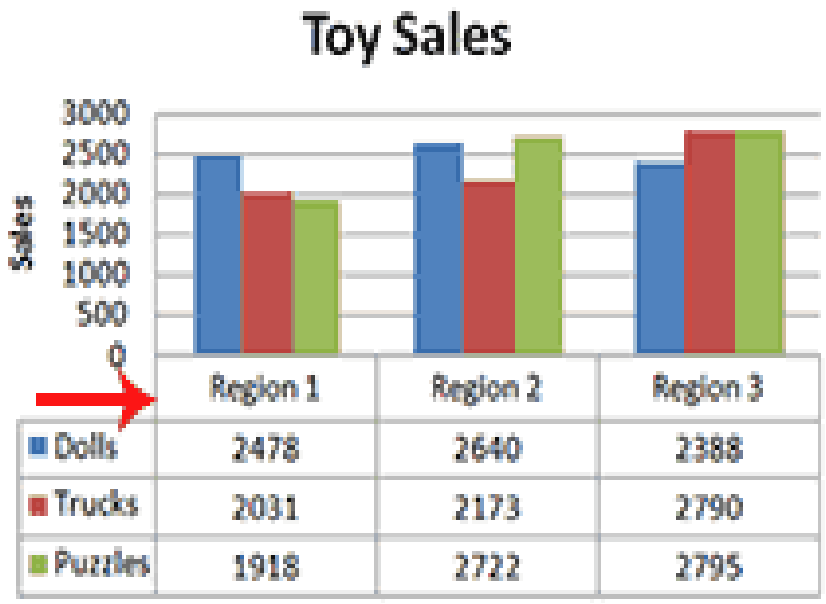


Before

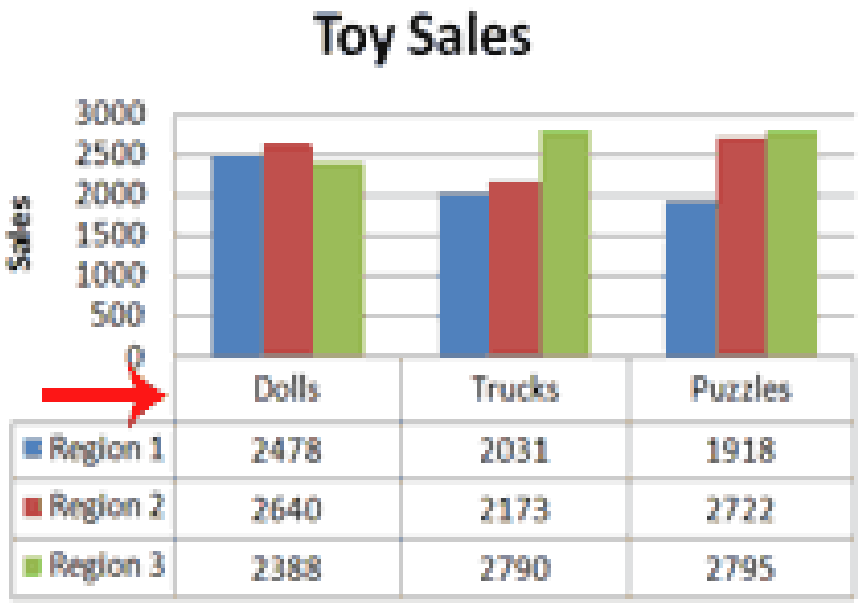
After

1. Select Chart Title. Click on Chart Title and then place your cursor before the C in Chart and hold down the Shift key while you use the right arrow key to highlight the words Chart Title.
2. Type Toy Sales. Excel adds your title.
3. Select Axis Title. Click on Axis Title. Place your cursor before the A in Axis. Hold down the Shift key while you use the right arrow key to highlight the words Axis Title.
4. Type Sales. Excel labels the axis.

Switch Data



Before

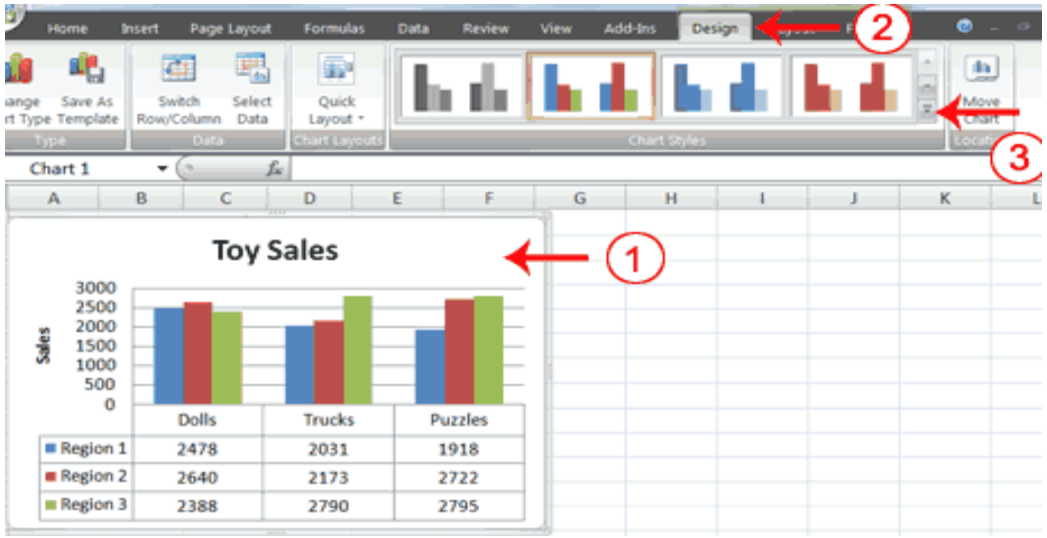


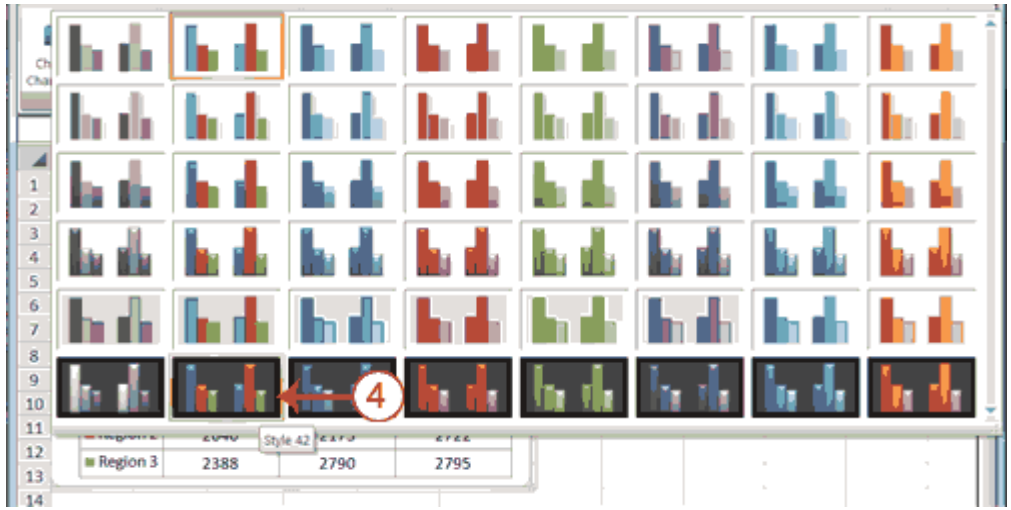
After

1. Click your chart. The Chart Tools become available.
2. Choose the Design tab.
3. Click the Switch Row/Column button in the Data group. Excel changes the data in your chart.

Change the style of a chart

1. Click your chart. The Chart Tools become available.
2. Choose the Design tab.
3. Click the More button in the Chart Styles group. The chart styles appear.
4. Click Style 42. Excel applies the style to your chart.



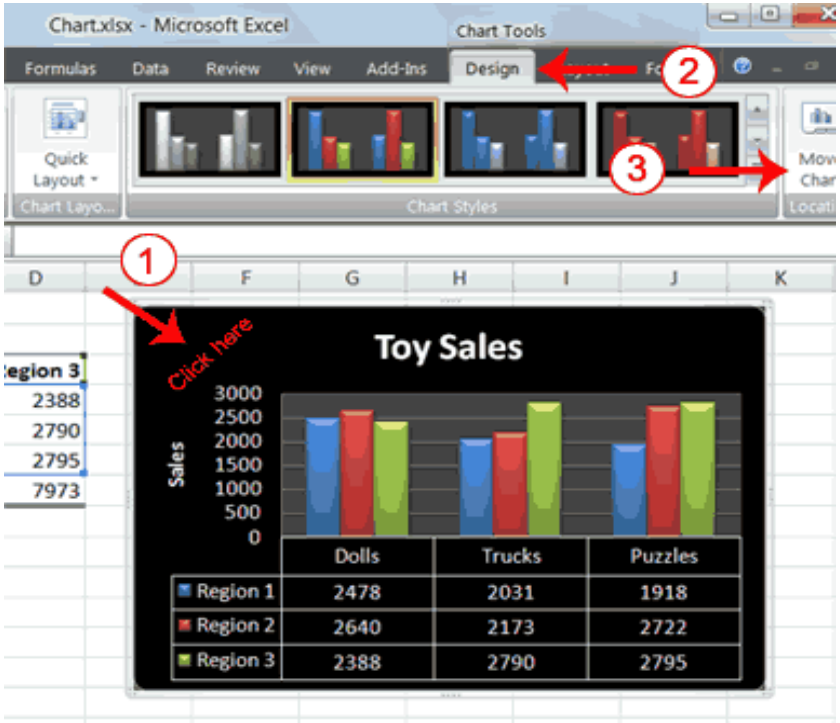


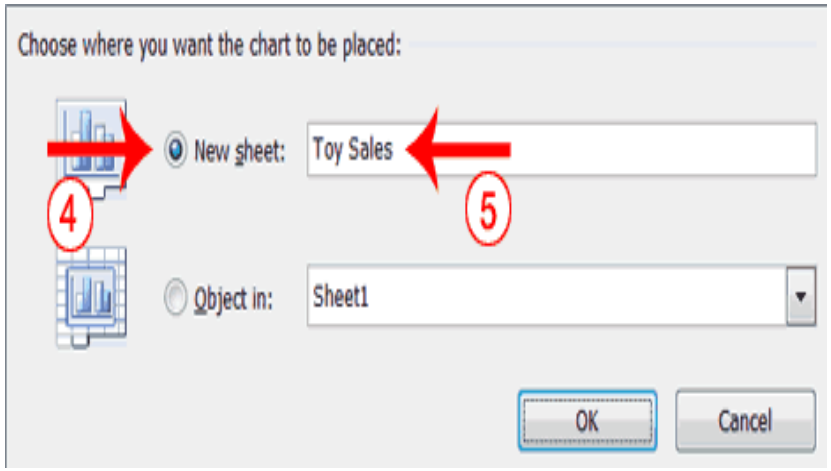
Move a chart to a Chart Sheet

1. Click your chart. The Chart Tools become available.

2. Choose the Design tab.

3. Click the Move Chart button in the Location group. The Move Chart dialog box appears.



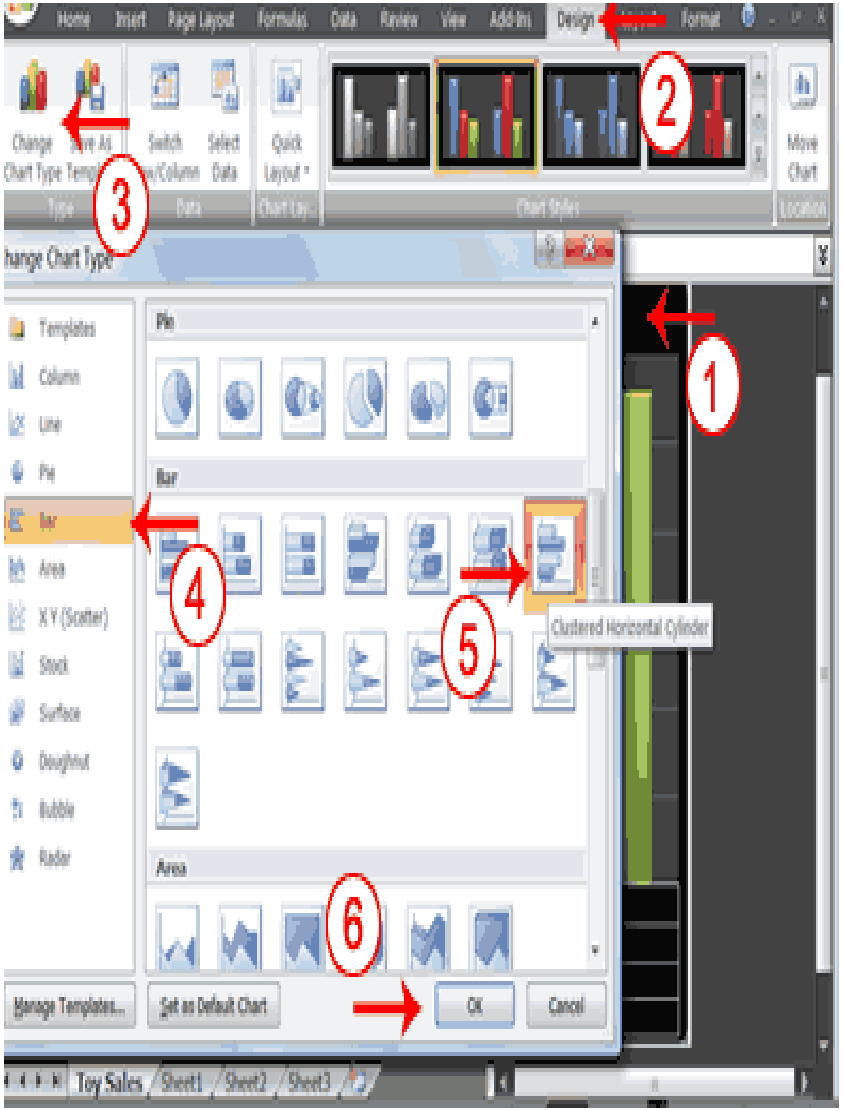


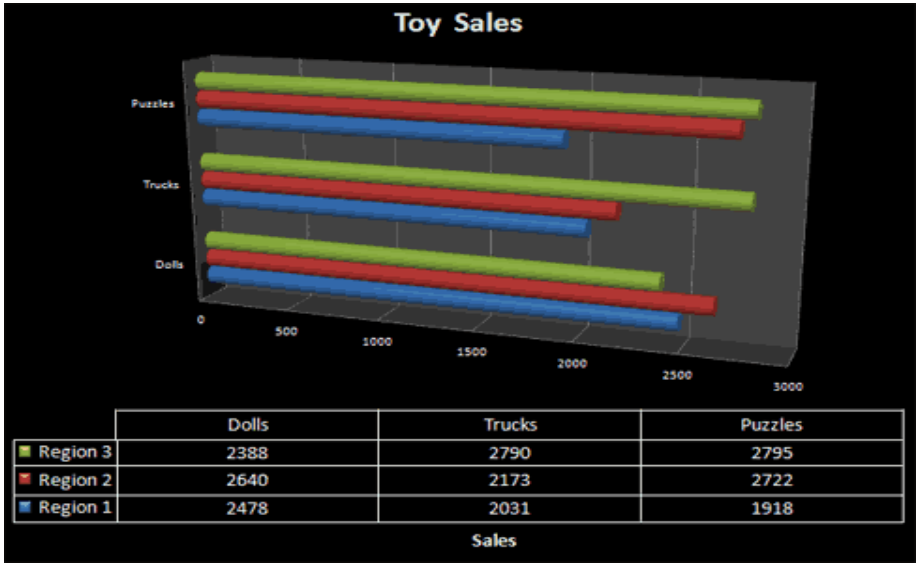
4. Click the New Sheet radio button.

5. Type Toy Sales to name the chart sheet. Excel creates a chart sheet named Toy Sales and places your chart on it.

Change the Chart Type

1. Click your chart. The Chart Tools become available.
2. Choose the Design tab.
3. Click Change Chart Type in the Type group. The Chart Type dialog box appears.
4. Click Bar.
5. Click Clustered Horizontal Cylinder.
6. Click OK. Excel changes your chart type.





Exercise

Excel Exercise

- Create an excel sheet with following data and save it as “yourname.xlsx” in the “Documents” folder.

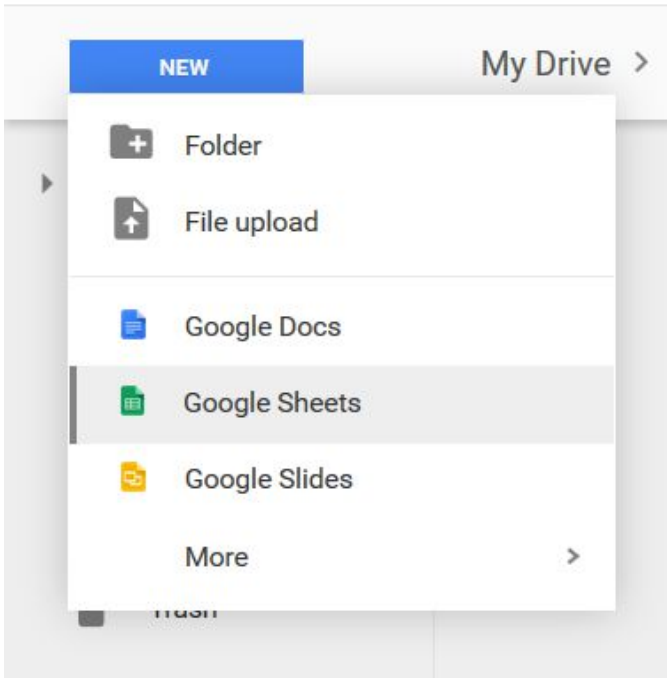
Client name	Starting balance	Interest (8%)	Final balance
Mr Kamal	8000		
Mr Ahmed	5000		
Mr Nader	23000		
Ms Ola	1000		

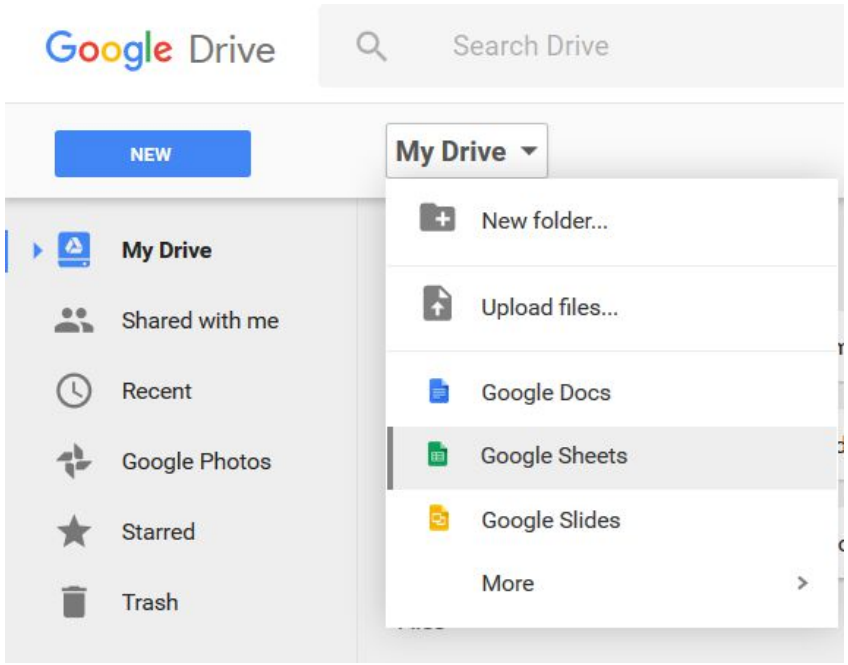
- Format the table as shown.

- Show a graph that displays the client name against his final balance.

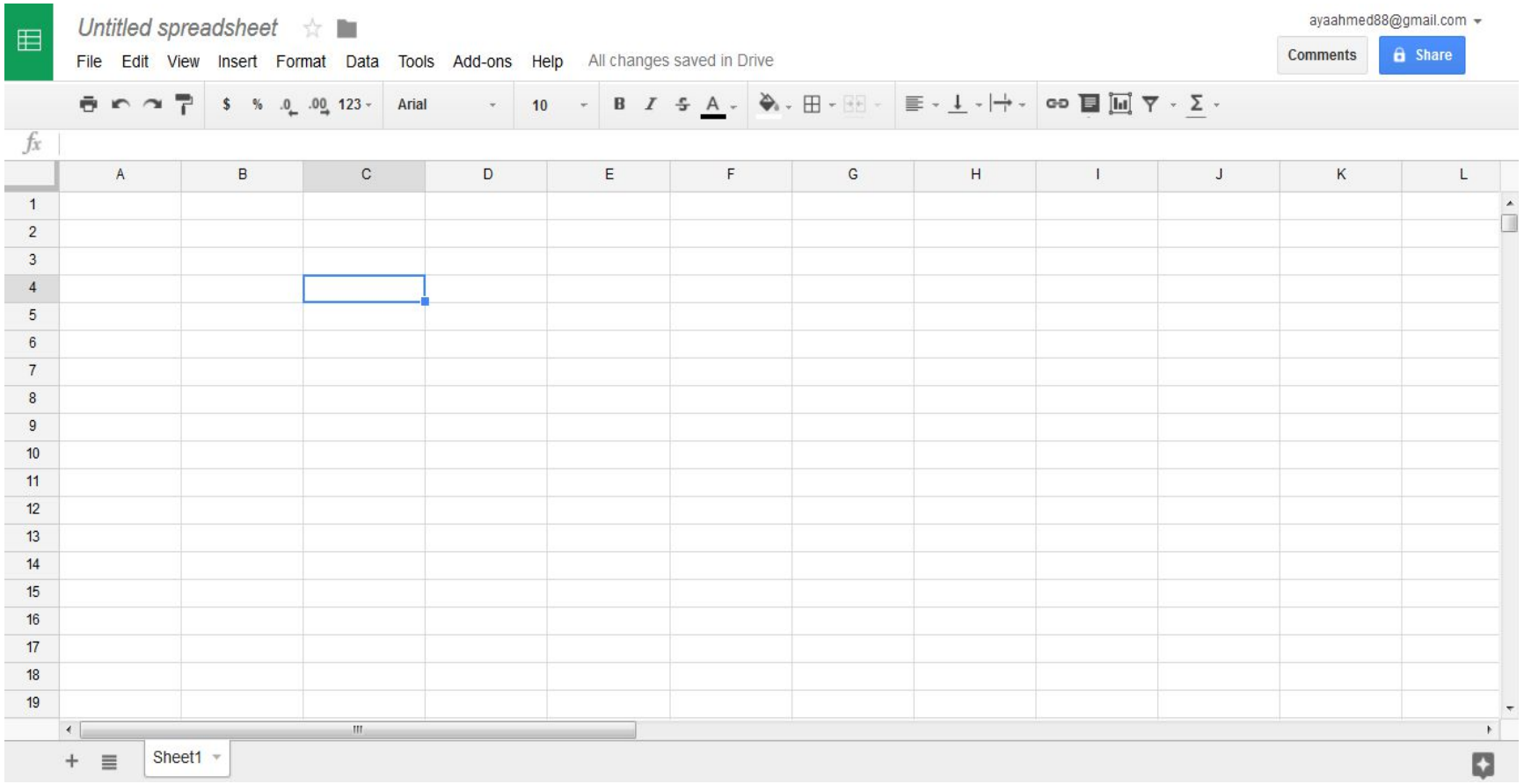
Google Sheets

Creating Sheets



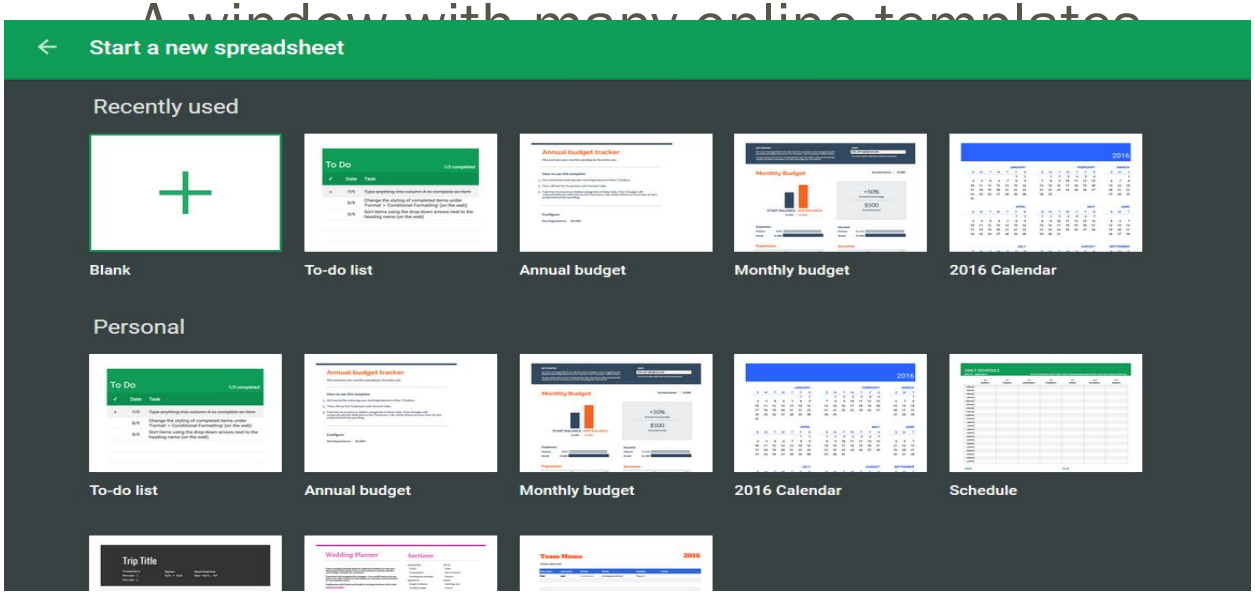


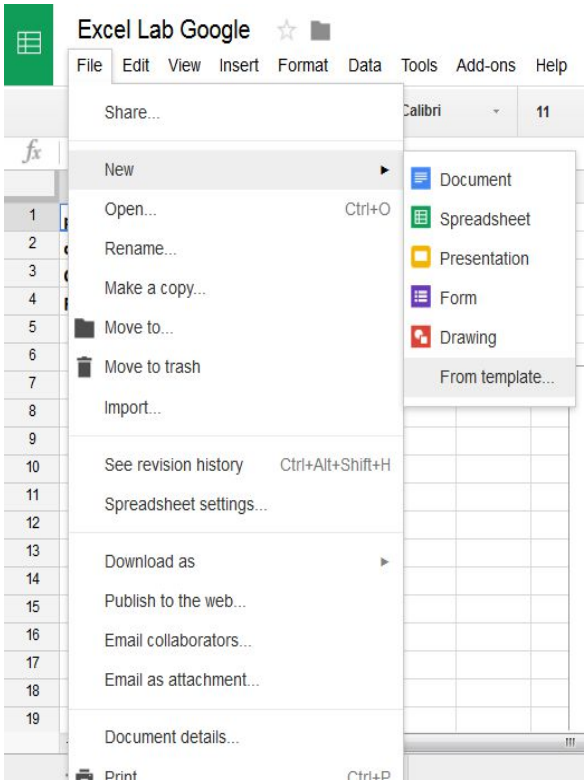
Google Sheet



Create a Sheet from a Template

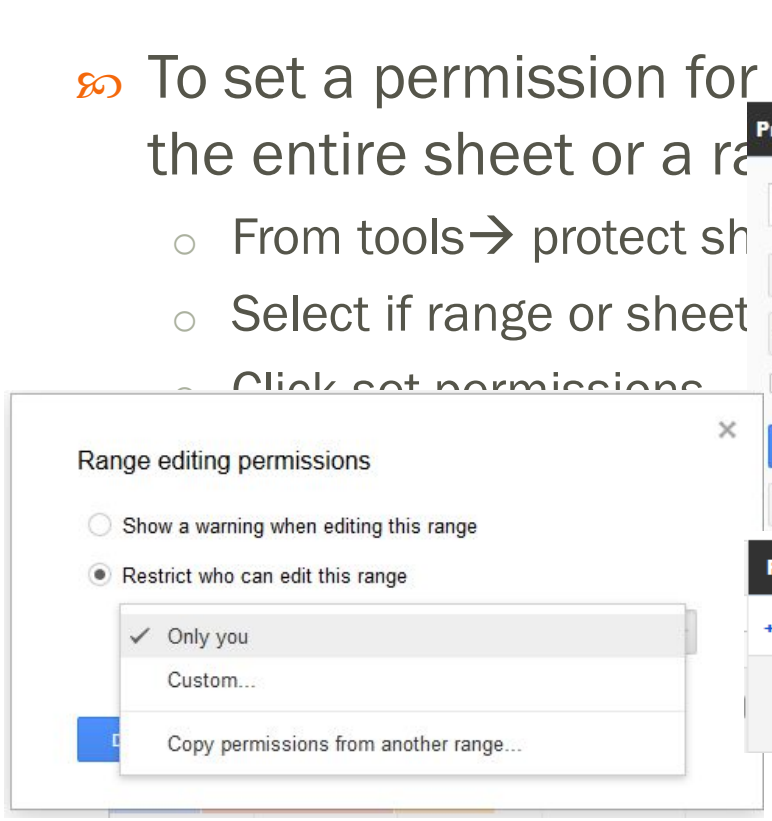
- Select New from **file** menu then select **from template.**

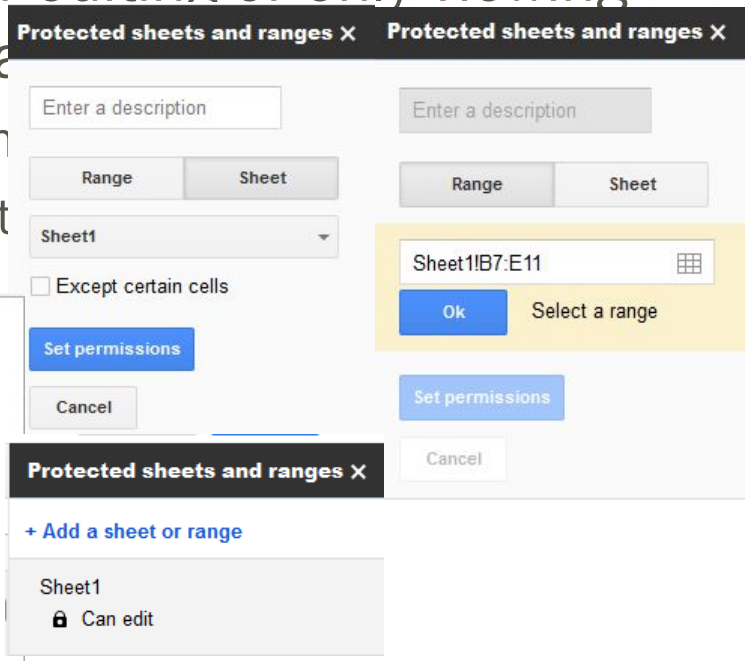


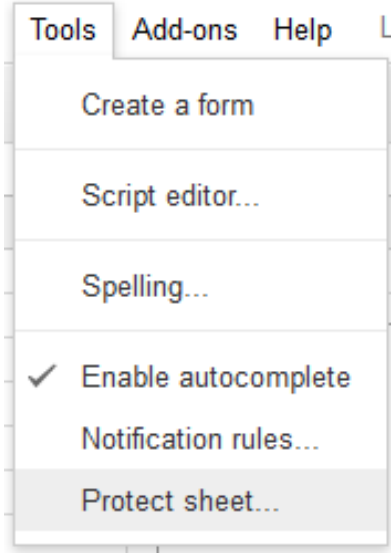


Protect sheet

- To set a permission for editing or only viewing the entire sheet or a ra
  - From tools→ protect sh
  - Select if range or sheet
  - Click set permissions

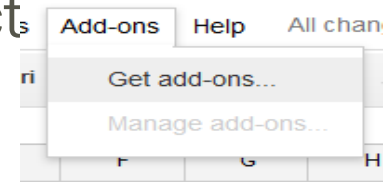


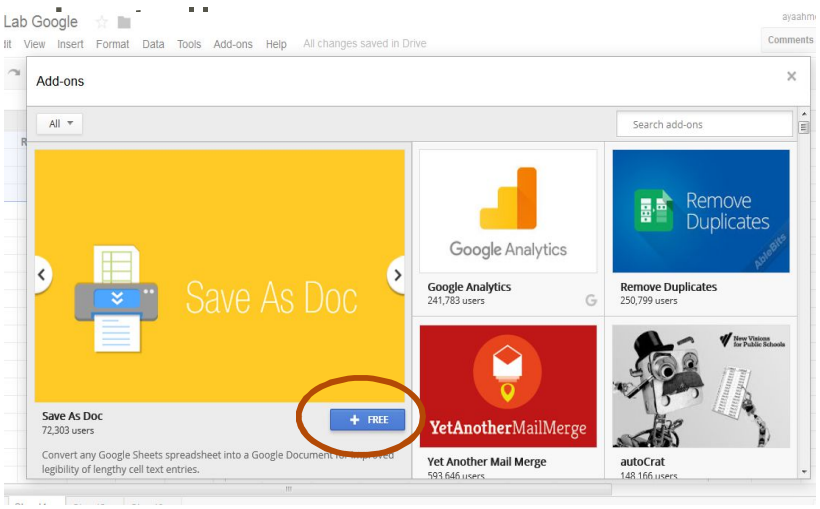


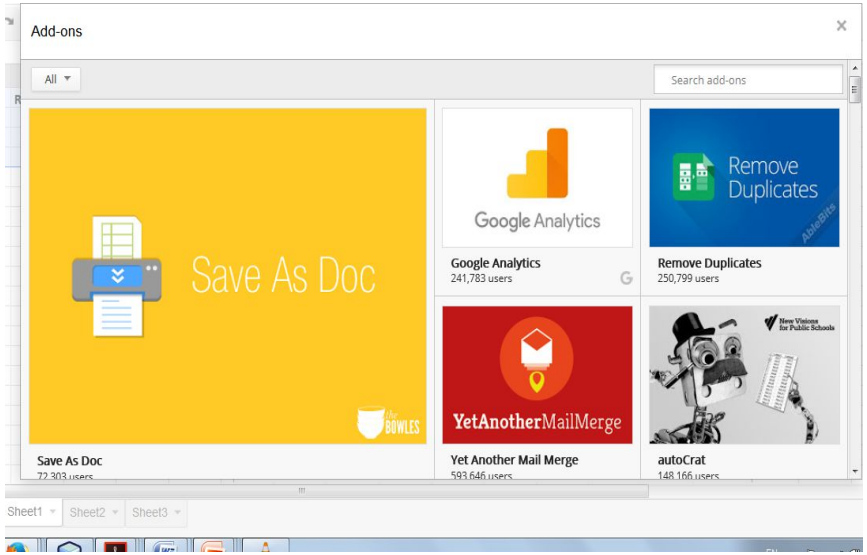


Add-ons on Google sheet

- Extra features to add in Google sheets.
- To get Add-ons from add-ons menu select
- List of all available add-ons will appear
- If move by mouse on Add-ons blue button will appear to

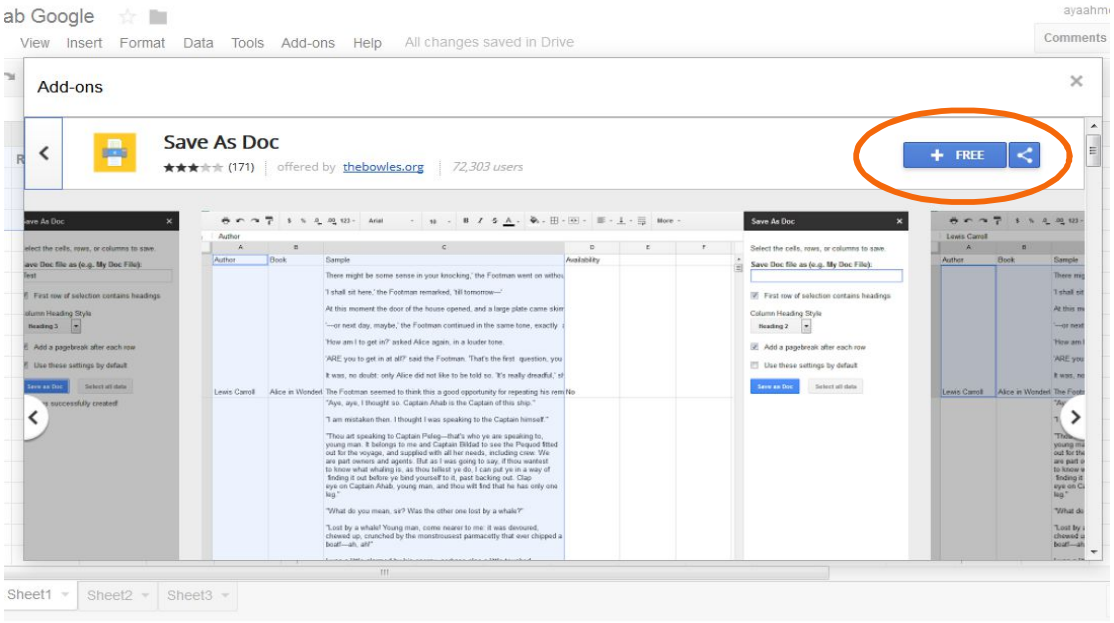






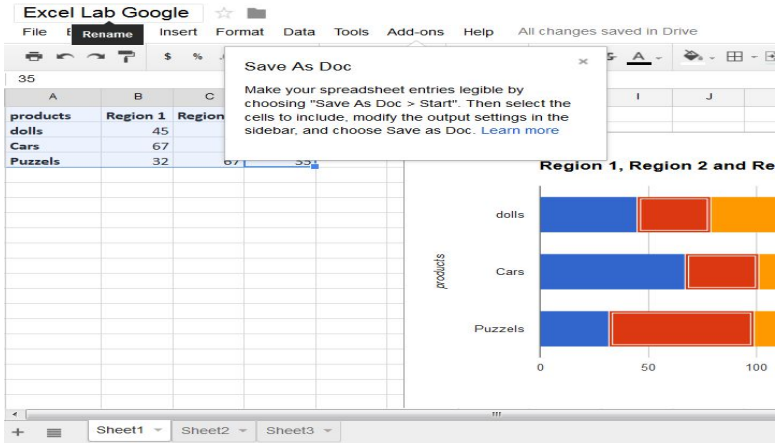
Add-ons on Google sheet

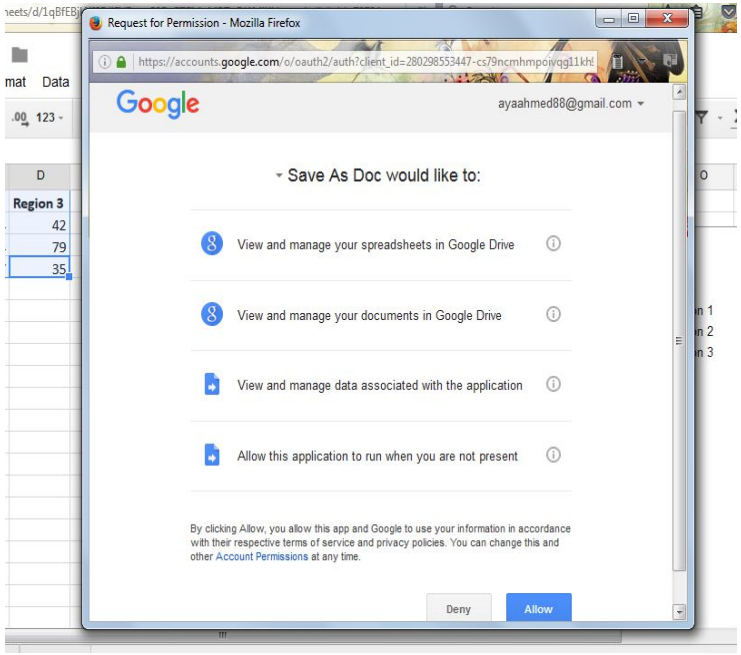
- To know features of specific Add-ons click on it
- To install click on the blue button either free or with Fees.



Add-ons on Google sheet

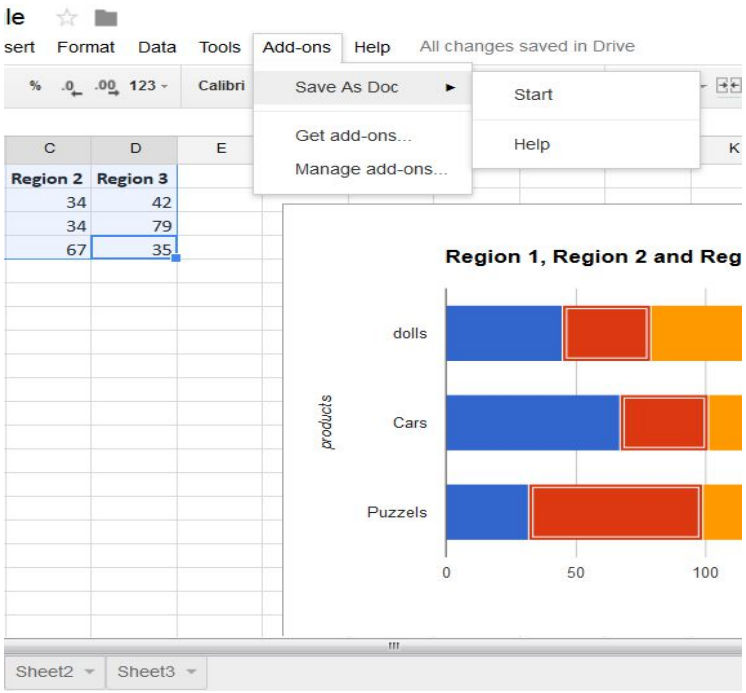
- To continue install you need to check the list of permissions the Add-on need to function.
  - If accept click Allow.
- After installation Finished:
  - Popup will appear





Add-ons on Google sheet

- The Add-on will be in the menu to use



Thank You