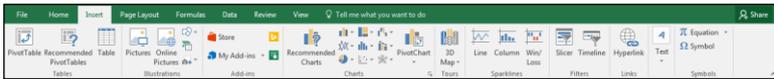


## Excel 2016 Tabs

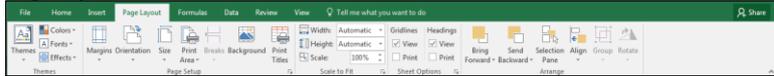
### Home



### Insert



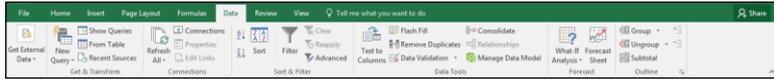
### Page Layout



### Formulas



### Data



### Review



### View



### Certification Test Goals

This module sets out advanced skills that can be used to produce sophisticated reports, to perform complex mathematical and statistical calculations, and to improve productivity using a spreadsheet application.

Successful candidates will be able to:

- Apply advanced formatting options such as conditional formatting and customised number formatting and handle worksheets.
- Use functions such as those associated with logical, statistical, financial and mathematical operations.
- Create charts and apply advanced chart formatting.
- Work with tables and lists to analyse, filter and sort data. Create and use scenarios.
- Validate and audit spreadsheet data.
- Enhance productivity by working with named cell ranges and macros.
- Use linking, embedding and importing features to integrate data.
- Compare and merge spreadsheets. Apply spreadsheet security features.

## 1 Formatting

### 1.1 Cells

#### 1.1.1 Apply conditional formatting.

- Select the range of cells.
- Select **Conditional Formatting** in the **Styles** group on the **Home** tab.
- Point to the **Highlight Cells Rules** or the **Top/Bottom Rules** option and select the desired criteria option.
- Set the criteria and formatting options.
- Click **OK**.

#### 1.1.2 Create and apply custom number formats.

- Select the range of cells.
- Select **Format** in the **Cells** group on the **Home** tab.
- Select **Format Cells**.
- Select **Custom** from the **Category** list in the **Number** tab.
- Customise the number format in the **Type** field as desired.
- Click **OK**.

#### 1.1.3 Split text to columns.

- Select the range of cells or columns containing the text to be split.
- On the **Data** tab, in the **Data Tools** group, click **Text to Columns**.
- The **Convert Text to Columns Wizard** window opens. Choose the appropriate file type and click **Next >**.
- Select the appropriate **Delimiters** and click **Next >**.
- Select the appropriate Column data format.
- Click the **OK** button and choose the cell range for the columns to appear.
- Click the **Options** button to expand the dialog box and click **Finish**.

### 1.2 Worksheets

#### 1.2.1 Copy, move worksheets between spreadsheets.

- Right-click the worksheet tab and select **Move or Copy**.

- Select the destination spreadsheet in the **To book** drop-down list and the position in the destination worksheet in the **Before sheet** field.
- Click **OK** to move the worksheet.
- To copy the worksheet, select the **Create a copy** checkbox and click **OK**.

#### 1.2.2 Split a window. Move, remove split bars.

- Select a location in a spreadsheet and click the **View** tab.
- Click **Split** in the **Window** group to split the window.
- Drag and drop the split bars to move them to a new location.
- Click **Split** in the **Window** group to remove the split bars.

#### 1.2.3 Hide rows, columns, worksheets.

- Select the columns, rows or worksheets to hide.
- Right-click on the selected columns, row headings or worksheet tabs.
- Select **Hide**.

#### 1.2.3 Show rows, columns.

- Select the columns or rows on each side of the hidden columns or rows
- Right-click on any of the selected columns or rows and select **Unhide**.

#### 1.2.3 Show worksheets.

- Right-click any of the worksheet tabs on either side of the hidden worksheet.
- Select **Unhide**.
- Select the sheet to show and click **OK**.

#### 1.2.4 Save a spreadsheet as a template.

- In the workbook to be used as a template.
- Click the **File** button and click **Export**.
- Under **Export**, click **Change File Type**.
- Select **Template in the Workbook File Types**.
- Enter the template name in the **File name** box.
- Click **Save** and close the template.

#### 1.2.4 Modify a template.

- Open the template.

## 2 Formulas and Functions

### 2.1 Using Functions and Formulas

#### 2.1.1 Use date and time functions: today.

- The **TODAY** function displays the current date.
- Use **=TODAY()**.

#### 2.1.1 Use date and time functions: now.

- The **NOW** function displays the current date and time.
- Use **=NOW()**.

#### 2.1.1 Use date and time functions: day, month, year.

- The **DAY** function displays the day of a date as a number.
- The **MONTH** function displays the month of a date as a number.
- The **YEAR** function displays the year of a date as a number.
- Use **=DAY(serial\_number)** or **=MONTH(serial\_number)** or **=YEAR(serial\_number)** where the serial\_number argument is the date.

#### 2.1.2 Use logical functions: and, or, not.

- The **AND** function returns **TRUE** if all arguments are **TRUE**, and **FALSE** if they are not **TRUE**.
- The **OR** function returns **TRUE** if any argument is **TRUE**, and **FALSE** if they are not **TRUE**.
- The **NOT** function returns the logic of its argument.

#### 2.1.3 Use mathematical functions: roundup, roundup.

- The **ROUNDDOWN** function rounds a number down to a specified number of decimal places.
- The **ROUNDUP** function rounds a number up to a specified number of decimal places.
- Use **=ROUNDDOWN(number,num\_digits)** or **=ROUNDUP(number,num\_digits)** where the number argument is the number to round down or up and the num\_digits argument is the number of decimal places to round the number to.

### 2.1.3 Use mathematical functions: sumif.

- The **SUMIF** function sums the values in a range that meet specified criteria.
- Select the cell in which the result should appear.
- Use **=SUMIF(range,criteria,[sum\_range])** where the range argument is the range of cells to evaluate with the criteria; the criteria argument is the number, text, cell reference, function or expression that specifies which cells to add; the sum\_range argument is optional and specifies the range of cells to add, if this is different from the range argument.

### 2.1.4 Use statistical functions: countif.

- The **COUNTIF** function counts the number of cells that meet a specified single criteria.
- Select the cell in which the result should appear.
- Use **=COUNTIF(range,criteria)** where the range argument is the range of cells to count; the criteria argument is the number, text, cell reference, or expression that specifies which cells to count.

### 2.1.4 Use statistical functions: countblank.

- The **COUNTBLANK** function counts empty cells in a cell range.
- Select the cell in which the result should appear.
- Use **=COUNTBLANK(range)** where the range argument is the range of cells to count.
- Press **ENTER**.

### 2.1.4 Use statistical functions: rank.

- The **RANK** function displays a number's position or rank in a list of numbers.
- Select the cell in which the result should appear.
- Use **=RANK(number,ref,[order])** where the number argument is the number to rank, the ref argument is the range of cells or range name to rank against, and order is optional and defines the list as descending, if 0 or blank, or ascending, if a number other than 0.
- Press **ENTER**.

### 2.1.5 Use text functions: left, right, mid.

- The **LEFT**, **RIGHT** and **MID** functions are used on text entries to extract a specified number of characters from the left, right or middle respectively.
- Use **=LEFT(text,[num\_chars])** or **=RIGHT(text,[num\_chars])** or **=MID(text,[num\_chars])** where the text argument is the text to modify and the num\_chars argument is optional and is the number of characters to extract. By default 1 character is extracted.

### 2.1.5 Use text functions: trim.

- The **TRIM** function removes all spaces from text entries except for single spaces between words.
- Use **=TRIM(text)** where the text argument is the text to modify.

### 2.1.5 Use text functions: concatenate.

- The **CONCATENATE** function joins the text of two or more cells.
- Use **=CONCATENATE(text1,[text2],...)** where text1, text2 arguments are the text, numbers or cell references to join.

### 2.1.6 Use financial functions: fv.

- The **FV** function calculates the future value of an investment assuming periodic, constant payments with a constant interest rate.
- Use **=FV(rate,nper,pmt)** where the rate argument is the interest rate per period, the nper argument is the number of payments and the pmt argument is the payment each period.
- To display the answer as a positive value place a negative sign ("-") at the beginning of the function or before the pmt value.

### 2.1.6 Use financial functions: pv.

- The **PV** function calculates the present value of a loan or investment with a constant interest rate.
- Use **=PV(rate,nper,pmt)** where the rate argument is the interest rate per period, the nper argument is the number of payments and the pmt is the payment each period.
- To display the answer as a positive value place a negative sign ("-") at the beginning of the function or before the pmt value.

### 2.1.6 Use financial functions: pmt.

- The **PMT** function calculates the periodic payments for a loan that has constant payments and a constant interest rate.
- Use **=PMT(rate,nper,pv)** where the rate argument is the interest rate per period, the nper argument is the number of payments, and the pv argument is the present value, also known as the loan amount.

### 2.1.7 Use lookup functions: vlookup.

- The **VLOOKUP** function searches vertically down the first column of a table array to find a specified value and then looks across the corresponding row to find a specified column and returns the value in the cell where the row and column meet.
- Use **=VLOOKUP(lookup\_value,table\_array,col\_index\_num,[range\_lookup])** where the lookup\_value argument is the value or cell reference to look up; the table\_array argument is the name or address of the lookup table; the col\_index\_num

argument is the number of the column containing the information to be returned; the range\_lookup argument is optional and specifies whether the return value is an exact (FALSE) or approximate (TRUE) match.

### 2.1.7 Use lookup functions: hlookup.

- The **HLOOKUP** function searches horizontally across the top row of a table array to find a specified value and then looks down the corresponding column to find a specified row and returns the value in the cell where the column and row meet.
- Use **=HLOOKUP(lookup\_value,table\_array,row\_index\_num,[range\_lookup])** where the lookup\_value argument is the value or cell reference to look up; the table\_array argument is the name or address of the lookup table; the row\_index\_num argument is the number of the row containing the information to be returned; the range\_lookup argument is optional and specifies whether the return value is an exact (FALSE) or approximate (TRUE) match.

### 2.1.8 Use database functions: dsum, dmin, dmax, dcount, daverage.

- The **DSUM** function calculates the sum total of the designated field for the rows that meet the criteria.
- The **DMIN** function determines the smallest numeric value in the designated field for the rows that meet the criteria.
- The **DMAX** function determines the largest numeric value in the designated field for the rows that meet the criteria.
- The **DCOUNT** function counts the number of rows with numeric or date values in the designated field for the rows that meet the criteria.
- The **DAVERAGE** function calculates the numeric average values of the designated field for the rows that meet the criteria.
- Use **=DSUM(database,field,criteria)** or **=DMIN(database,field,criteria)** or **=DMAX(database,field,criteria)** or **=DCOUNT(database,field,criteria)** or **=DAVERAGE(database,field,criteria)** where the database argument is the range of cells making up the database or list (including the header row); the field argument is the address or name of the column label of the field to use; and the criteria argument is the range of cells that meet the specified criteria.

### 2.1.9 Create a two-level nested function.

- A nested function refers to a function placed inside another function. For example an IF function can be extended using one or more nested IF functions.
- Use **=IF(logical\_test,action if true,IF(logical\_test,action if true,action if false))**.

### 2.1.10 Use a 3-D reference within a sum, average, minimum, maximum function.

- A 3D-reference is a reference to the same cell or range on more than one worksheet.
- Click the cell where the function will be entered.
- Type **=** sign, enter the name of the appropriate function such as **SUM**, **AVERAGE**, **MINIMUM**, **MAXIMUM** and then a left bracket. **=SUM(**
- Click the tab for the first worksheet to be referenced.
- Hold the **Shift** key and click the tab for the last worksheet to be referenced.
- Select the cell or range of cells to be referenced.
- Complete the formula and press **Enter**.

### 2.1.11 Use mixed references in formulas.

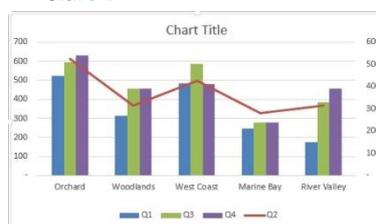
- A mixed cell reference contains both a relative cell reference and an absolute cell reference. It is either an absolute column (add a \$ before the column letter) and relative row, or absolute row (add a \$ before the row number) and relative column.

## 3 Charts

### 3.1 Creating Charts

#### 3.1.1 Create a combined chart like: column and line.

- Select the data to be used in the chart.
- Select the **Insert** tab and select the arrow to the right of the **Insert Column Chart** box in the **Charts** group.
- Select a chart type.
- Select **Change Chart type** in the **Chart Tools Design** tab.
- Select **Combo**.
- Select **Line** in the Chart Type drop down list
- Tick the **Secondary Axis** box. Ensure any other series have the chart type **Clustered Column** and that the secondary axis is not ticked.
- Click **OK**.



#### 3.1.1 Create a combined chart like: column and area.

- Select the data to be used in the chart.
- Select the **Insert** tab and select the arrow to the right of the **Insert Column Chart** box in the **Charts** group.
- Click **More Column Charts...**
- Click **Combo**, and then the appropriate column type.
- Beside the series name for the data, select the **Area** chart type from the drop-down menu.
- Click **OK** to insert.

#### 3.1.2 Create a sparkline.

- Select an empty cell or group of empty cells to insert the sparkline(s).
- On the **Insert** tab, in the **Sparklines** group, click the type of sparkline that you want to create: **Line**, **Column** or **Win/Loss**.
- In the **Data** box, type the range of the cells that contain the data on which you want to base the sparklines.

#### 3.1.2 Change a sparkline.

- Select the sparkline(s) to be changed.
- On the **Design** tab, in the **Style** group, click the **More** drop-down arrow.
- From the drop-down menu, choose the desired style.
- The updated sparkline style will be shown in the worksheet.

#### 3.1.2 Delete a sparkline.

- Select the sparkline(s) to be deleted.
- On the **Design** tab, in the **Group** section, click the **Clear** combo button to remove the selected sparkline(s).
- To delete an entire sparkline group, click the **Clear** drop-down button and select **Clear Selected Sparkline Groups**.

#### 3.1.3 Add a secondary axis to a chart.

- Select the chart.
- Select the **Chart Tools Format** tab.
- Select the **data series** to chart against the secondary axis from the **Chart Elements** drop-down list in the **Current Selection** group.
- Select **Format Selection** in the **Current Selection** group.
- Select the **Secondary Axis** option under Plot Series On in the **Series Options** pane.
- Select **Close**.

#### 3.1.4 Change the chart type for a defined data series.

- Right-click the data series to change.
- Select **Change Series Chart Type**.
- Select an appropriate chart type to use from the list in the left-hand pane of the dialog box.
- Select the specific chart type to use for the specific series **Chart Type** drop down list.
- Click **OK**.

#### 3.1.5 Add a data series in a chart.

- Select the chart and click **Select Data** in the **Data** group in the **Chart Tools Design** tab.
- Click **Add**.
- Enter the **series name** and select the **series values** from the data source.
- Preview changes and click **OK**.

#### 3.1.5 Delete a data series in a chart.

- Select the chart and click **Select Data** in the **Chart Tools Design** tab.
- Uncheck the **data series** to remove.
- Click **OK**.

### 3.2 Formatting Charts

#### 3.2.1 Re-position chart title, legend, data labels.

- Select the **chart title**, **legend** or **data labels** as appropriate.
- Click the **Charts Element** button next to the upper right corner of the chart.
- Click the arrow next to the **Chart title**, **Legend** or **Data Labels** as appropriate and select the desired position.
- The position can also be changed by dragging and dropping the chart element.

#### 3.2.2 Change scale of value axis: minimum, maximum number to display, major interval.

- Select the chart.
- Select the **Chart Tools Format** tab.
- Select the chart element to format from the **Chart Elements** drop-down list.
- Select **Format Selection**.
- Select the desired scaling option and apply the new value in the **Axis options** pane.
- Select **Close**.

#### 3.2.3 Change display units on value axis without changing data source: hundreds, thousands, millions.

- Select the chart and select the **Chart Tools Format** tab.
- Select the chart element to format from the **Chart Elements** drop-down list.
- Select **Format Selection**.
- Change the display units as desired in the **Axis options** pane.
- Select **Close**.

### 3.2.4 Format columns, bars, pie slices, plot area, chart area to display an image.

- Select the chart and select the **Chart Tools Format** tab.
- Select the desired chart element to format from the **Chart Elements** drop-down list.
- Select **Format Selection**.
- Select **Fill and Line** and then **Picture or texture fill**.
- Choose the desired option and select **Close**.

## 4 Analysis

### 4.1 Using Tables

#### 4.1.1 Create, modify a pivot table/datapilot.

- Select a cell containing data in the worksheet.
- Select the **PivotTable** button in the **Tables** group in the **Insert** tab.
- Select where you want the PivotTable report to appear.
- Click **OK**.
- To set up the Rows, select the desired field names from the field section in the **PivotTable Field List** pane and drag to the **ROWS** box in the layout section.
- To set up the Columns, select the desired field name from the field section in the **PivotTable Field List** pane and drag to the **COLUMNS** box in the layout section.
- To set up the values, select the desired field name from the field section in the **PivotTable Field List** pane and drag to the **VALUES** box in the layout section.

#### 4.1.2 Modify the data source and refresh the pivot table/datapilot.

- Modify data in the data source as desired.
- Right-click any cell in the PivotTable report to refresh the pivot table.
- Click **Refresh** in the shortcut menu.

#### 4.1.3 Filter, sort data in a pivot table/datapilot.

- Select the desired **field name** in the **PivotTable Fields** pane and drag and drop it to the **Filters** box.
- Click the **report filter field list**.
- Select the desired item.
- Select **OK**.

#### 4.1.4 Automatically, manually group data in a pivot table/datapilot and rename groups.

- Select the range of cells you want to group.
- Select the **PivotTable Tools Analyze** tab.
- Click **Group Selection** from **Group**.
- Select the **heading** of the new group.
- Type the **name** for the group and press **ENTER**.

#### 4.1.5 Use one-input data tables.

- A one-variable data table has input values that are listed either down a column (vertically) or across a row (horizontally). Formulas that are used in a one-variable data table must refer to only one input cell.
- Select the **cell** immediately above the output column or to the left of the output row.
- Type the formula to evaluate or link to the cell containing the formula and press **ENTER**.
- Select the **entire cell range** containing the formula, the input column/row, and the output column/row.
- Select the **What-If Analysis** button in the **Forecast** group in the **Data** tab.
- Select **Data Table**.
- Select the **Row input cell** box or the **Column input cell** box, as necessary.
- Select the input cell and click **OK**.

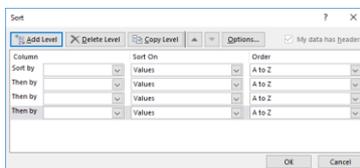
#### 4.1.5 Use two-input data tables/multiple operations tables.

- A two-variable data table uses a formula that contains two series of input values. The formula must refer to two different input cells.
- Select the **cell** immediately above the output column and to the left of the output row.
- Type the formula to evaluate or link to the cell containing the formula and press **ENTER**.
- Select the entire data table range.
- Select the **What-If Analysis** button in the **Forecast** group in the **Data** tab.
- Select **Data Table** and select the **Row input cell**.
- Select the **Column input cell** box and select the **column input cell**.
- Click **OK**.

### 4.2 Sorting and Filtering

#### 4.2.1 Sort data by multiple columns at the same time.

- Select any cell in a table.
- Select **Sort** in the **Sort & Filter** group in the **Data** tab.
- Select the **Column Sort by** list and select the name of the column to use for the first level of sorting.
- Select the **Sort On** list and the desired option and select the **Order** list and the desired option.
- Select the **Add Level** button.
- Select the **Column Then by** list and select the name of the column to use for the second level of sorting.
- Select the **Sort On** list and the desired option and select the **Order** list and the desired option.
- Add additional levels of sorting as required and click **OK**.



#### 4.2.2 Create a customized list and perform a custom sort.

- Select any cell in the column to sort.
- Select **Sort & Filter** in the **Editing** group in the **Home** tab.
- Select **Custom Sort** from the list.
- Select the **field** to sort by from the **Sort by** list.
- Select **Custom List** in the **Order** list.
- Select the **sequence** from the **Custom** lists options.
- Click **OK** and click **OK**.

#### 4.2.3 Automatically filter a list in place.

- Click anywhere within the data range.
- Select **Filter** in the **Sort & Filter** group of the **Data** tab.
- Select the desired filter arrow.
- Select only the item to filter the data and click **OK**.

#### 4.2.4 Apply advanced filter options to a list.

- Select the cell below the criteria label corresponding to the database column you want to search.
- Type the desired criteria and press **ENTER**.
- Select the cell below the criteria label corresponding to the second database column to search.
- Type the desired criteria and press **ENTER**.
- Select any cell in the database.
- Select **Advanced** in the **Sort & Filter** group in the **Data** tab.
- Click the **Collapse Dialog** button in the **Criteria** range box and select the **criteria range**.
- Click the **Expand Dialog** button in the **Advanced Filter - Criteria Range** dialog box and click **OK**.

#### 4.2.5 Use automatic, manual outline features: group, ungroup.

- Select a cell in the column containing the entries to use for grouping.
- Select **Group** in the **Outline** group.
- Select to group by **Rows** or **Columns** and click **OK**.
- To group automatically, click the drop-down button and click **Auto Outline**.
- To Ungroup, select the grouped outline and click **Ungroup** in the **Outline** group.

#### 4.2.5 Use automatic, manual outline features: sub-total.

- Select a cell in the column containing the entries to use for grouping.
- Select the desired sort order in the **Sort & Filter** group in the **Data** tab.
- Select **Subtotal** in the **Outline** group.
- Select the column used to sort the list in the **At each change** in drop-down list.
- Select the desired function in the **Use function** drop-down list.
- Select the first column for which to calculate subtotals in the **Add subtotal to list** box.
- Select or deselect additional columns, as desired.
- Select or deselect subtotal options, as desired.
- Click **OK**.

#### 4.2.6 Expand, collapse outline detail levels.

- To expand data in a group, click the **+** outline symbol.
- To collapse data in a group, click the **-** outline symbol.
- To expand or collapse an outline to a specific level click the desired level number in the **1 2 3** outline symbols.

### 4.3 Scenarios

#### 4.3.1 Create named scenarios.

- Select the desired changing cells.
- Select **What-If Analysis** in the **Forecast** group in the **Data** tab.
- Select **Scenario Manager**.
- Select **Add**.
- Type the desired **scenario name** and click **OK**.
- Enter the desired values in the changing cell boxes and click **OK**.
- Click **Close**.

#### 4.3.2 Show, edit, delete scenarios.

- Select **Scenario Manager**.
- Select the **scenario to view** in the **Scenarios** list box.
- To show the scenario, select **Show**.
- To edit the scenario, select **Edit**, click **OK**, enter the new value in the box of the changing cell to edit and click **OK**.
- To delete the scenario, select **Delete**.

#### 4.3.3 Create a scenario summary report.

- Select **Scenario Manager**.
- Select **Summary**.
- Ensure the **Scenario summary** radio button is selected.

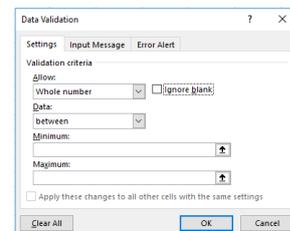
- Select the result cells to display in the scenario summary report and click **OK**.

## 5 Validating and Auditing

### 5.1 Validating

#### 5.1.1 Set, edit validation criteria for data entry in a cell range like: whole number, decimal, list, date, time.

- Select the column data for which to restrict data entry.
- Select **Data Validation** in the **Data Tools** group in the **Data** tab.
- Select the desired option from the **Allow** drop-down list in the **Settings** tab in the **Data Validation** dialog box.
- Select the desired option from the **Data** drop-down list and set the desired limits. In the case of a list select the desired data source instead.
- Select or deselect the **Ignore Blank** option, as desired. In the case of a list also select or deselect the **In-cell dropdown** option, as desired.
- Click **OK**.



#### 5.1.2 Enter input message.

- Select the column data for which to customize the message.
- Select **Data Validation** in the **Data Tools** group in the **Data** tab.
- To enter an input message select the **Input Message** tab in the **Data Validation** dialog box.
- Type the desired **title** in the **Title** box.
- Type the desired **message** in the **Input message** box
- Click **OK**.

#### 5.1.2 Enter error alert.

- Select the column data for which to customize the error message.
- Select **Data Validation** in the **Data Tools** group in the **Data** tab.
- To enter an error alert select the **Error Alert** tab in the **Data Validation** dialog box.
- Select the desired **style** from the **Style** drop-down list.
- Type the desired **title** in the **Title** box.
- Type the desired **error message** in the **Error message** box.
- Click **OK**.

### 5.2 Auditing

#### 5.2.1 Trace precedent, dependent cells. Identify cells with missing dependents.

- Precedents are cells that are referred to by a formula in another cell.
- To view direct precedents, select the **cell** containing the formula.
- Select **Trace Precedents** in the **Formula Auditing** group in the **Formulas** tab.

|   | B      | C      | D      | E      | F      | G      | H      | I      | J      | K       | L       |
|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|---------|---------|
| 5 | =B5000 | =C5000 | =D5000 | =E5000 | 10,457 | =F5000 | =G5000 | =H5000 | =I5000 | 10,929  | 10,693  |
| 6 | =B5000 | =C5000 | =D5000 | =E5000 | 10,421 | =F5000 | =G5000 | =H5000 | =I5000 | 20,979  | 35,614  |
| 7 | =B5000 | =C5000 | =D5000 | =E5000 | 1,134  | =F5000 | =G5000 | =H5000 | =I5000 | 5,879   | 3,257   |
| 8 | 16,221 | 29,110 | 24,711 | 25,821 | 95,063 | 6,791  | 39,328 | 97,544 | 48,021 | 113,283 | 109,872 |

- Dependents are cells that contain formulas that refer to other cells.
- To view dependents, select the relevant cell.
- Select **Trace Dependents** in the **Formula Auditing** group in the **Formulas** tab.
- To view the next level of precedents or dependents, click **Trace Precedents** or **Trace Dependents** again.

#### 5.2.2 Display all formulas in a worksheet, rather than the resulting values.

- Select **Show Formulas**  **Show Formulas** in the **Formula Auditing** group in the **Formulas** tab.

#### 5.2.3 Insert, edit, delete, show, hide comments/notes in a worksheet locally.

- To insert a comment, select a cell, select **New Comment** on the **Review** tab and type the required text in the comment box.
- To edit a comment, select the cell with the comment and select **Edit Comment** and type the required text.
- To delete a comment, select the cell with the comment and select **Delete Comment**.
- To show a comment, select the cell with the comment and select **Show/Hide Comment**  **Show/Hide Comment**.
- To hide a comment, select the cell with the comment and select **Show/Hide Comment**.
- To show all comments in a worksheet, select **Show All Comments**  **Show All Comments**.

- To hide all comments in a worksheet, select **Show All Comments**.

### 5.2.3 Insert, edit, delete, show, hide comments/notes in a worksheet online.

- To insert a comment, select a cell, select **New Comment** on the **Review** tab and type the required text in the comment box. Click **Post** to insert.
- To edit a comment, select the cell with the comment and select **Edit Comment** and type the required text. Click **Post** when finished.
- To delete a comment, select the cell with the comment and select **Delete Comment**.
- To show comments in a worksheet online, select the **Show Comments** button. To hide comments also click the **Show Comments** button.

## 6 Enhancing Productivity

### 6.1 Naming Cells

#### 6.1.1 Name cell ranges.

- Select the cell or range to name.
- Click the **Name Box** on the formula bar.
- Type the desired name and press **ENTER**.
- Names can contain underscores however they must start with a letter, be unique, not match valid cell addresses, and not contain spaces or any other special characters.

#### 6.1.1 Delete names for cell ranges.

- Select **Name Manager** in the **Defined Names** group in the **Formulas** tab.
- Select the name to delete from the Name list box and click **Delete**.
- Click **OK**.
- Click **Close**.

#### 6.1.2 Use named cell ranges in a function.

- Select the cell in which the result of the formula will appear.
- Start typing the formula or function and type the desired name at the appropriate location in the formula and press **ENTER**.

#### 6.1.3 Activate the group mode.

- Select the first worksheet to include in the group.
- Hold down the **SHIFT** key and select the final worksheet to be included in the group.
- Holding down the **Ctrl** key enables selecting non-contiguous work sheets for grouping.

#### 6.1.3 Deactivate the group mode.

- Hold down the **SHIFT** or **Ctrl** key and select the first worksheet of the group.

### 6.2 Paste Special

#### 6.2.1 Use paste special options: add, subtract, multiply or divide.

- Select the cell contents to be added, subtracted, multiplied or divided.
- Select **Copy** from the **Clipboard** group on the **Home** tab.
- Select the cell or cells to which the paste will be applied.
- Select **Paste** from the **Clipboard** group on the **Home** tab.
- Select **Paste Special**.
- Under **Operation** select the operation to carry out: add, subtract, multiply or divide.
- Click **OK**.

#### 6.2.2 Use paste special options: values /numbers.

- Formulas can be pasted as values/numbers. Select the cells to paste as values.
- Select **Copy** in the **Clipboard** group on the **Home** tab.
- Click the **Paste** arrow in the **Clipboard** group of the **Home** tab and select **Paste Special**.
- Select **Values** in the **Paste Special** dialog.
- Click **OK**.

#### 6.2.2 Use paste special options: transpose.

- Transpose can be used to switch data from columns to rows, or vice versa. Select a column to transpose.
- Select **Copy** in the **Clipboard** group on the **Home** tab.
- Select a destination cell.
- Click the **Paste** arrow in the **Clipboard** group of the **Home** tab and select **Paste Special**.
- Select **Transpose** in the **Paste Special** dialog box.
- Click **OK**.

### 6.3 Linking, Embedding and Importing

#### 6.3.1 Insert a hyperlink.

- Select the cell or object to link.
- Select **Hyperlink** in the **Links** group on the **Insert** tab.
- Select **Existing File or Web Page**.
- Navigate to and select the file to link to or enter the web address.
- Click **OK**.

#### 6.3.1 Edit a hyperlink.

- Right-click the hyperlink to edit.
- Select **Edit Hyperlink**.
- Make the desired changes and click **OK**.

#### 6.3.1 Remove a hyperlink.

- Right-click the hyperlink to delete.
- Select **Remove Hyperlink**.

### 6.3.2 Link data within a spreadsheet.

- Select the source data.
- Select **Copy** from the **Clipboard** group on the **Home** tab.
- Select **Paste** from the **Clipboard** group on the **Home** tab.
- Select the destination cell.
- In the **Clipboard** group select the **Paste** button arrow and select **Paste Special**.
- In the **Paste Special** window select **Paste Link**.

### 6.3.2 Link data between spreadsheets.

- Select the source data.
- Select **Copy** from the **Clipboard** group on the **Home** tab.
- Switch to the destination spreadsheet and select the destination cell.
- In the **Clipboard** group select the **Paste** button arrow and select **Paste Special**.
- In the **Paste Special** window select **Paste Link**.

### 6.3.2 Link data between applications.

- Select the source data and select **Copy** from the **Clipboard** group on the **Home** tab.
- Switch to the destination application, for example Microsoft Word, and select the destination.
- Select the **Paste** button arrow in the **Clipboard** group and select **Paste Special**.
- In the **Paste Special** window choose **Microsoft Office Word Worksheet Object**.
- Click **Paste link** and click **OK**.

### 6.3.3 Update a link, break a link.

- Select any cell in the worksheet and select **Edit Links** in the **Connection** group in the **Data** tab.
- Click **Update Values** to update a link or click **Break Link** to break a link.
- Select **Break Link**.

### 6.3.4 Import delimited data from a text file.

- Select **From Text** in the **Get External Data** group in the **Data** tab.
- Navigate to the location of the file to import.
- Select **Import**.
- In the **Text Import Wizard** dialog box specify the data header.
- Select **Next**.
- Select the **delimiter** used in the text file.
- Select **Next**.
- Select the **column** to format or skip in the **Data** preview pane.
- Under **Column data format**, select the desired format option and select **Finish**.
- In the **Import Data** dialog box select the location where you want the imported data to appear and click **OK**.

### 6.4 Automation

#### 6.4.1 Record a simple macro like: change page setup, apply a custom number format, apply autoformats to a cell range, insert fields in worksheet header, footer.

- Select **Macros** drop-down arrow in the **Macros** group in the **View** tab.



- Type the desired **macro name** in the Macro name box in the Record Macro dialog box.
- Type the desired **shortcut key character** in the **Shortcut key** box, if desired.
- Select the **Store macro in list** and select the desired **location** in which to store the macro.
- Select the **Description** box and type the desired **macro description**.
- Click **OK**.
- Perform the steps in the procedure being automated.
- Click the **Stop Recording** button in the **Code** group to stop recording the macro steps.

#### 6.4.2 Run a macro.

- Select **Macros** in the **Macros** group in the **View** tab.
- Select the **macro** to run in the **Macro** dialog box.
- Click **Run**.

#### 6.4.3 Assign a macro to a custom button.

- Select the **Customize Quick Access Toolbar** button to the right of the **Quick Access Toolbar**.
- Select **More Commands**.
- Select **Macros** from the **Choose commands from** drop-down list.
- Select the desired **macro**.
- Select **Add**.
- Click **OK**.

## 7 Collaborative Editing

### 7.1 Reviewing and Security

#### 7.1.1 Compare and merge spreadsheets.

- If necessary, add the **Compare and Merge Workbooks** button to the **Quick Access Toolbar**.

- Select the **Compare and Merge Workbooks** button on the **Quick Access Toolbar**.
- Select the workbook to merge in the **Select Files to Merge Into Current Workbook** dialog box.
- To merge additional workbooks, hold **Ctrl** and select the other workbooks you want to merge.
- Click **OK**.

#### 7.1.2 Add password protection for a spreadsheet: to open, to modify.

- Press the function key **F12**.
- Select **Tools**.
- Select **General Options**.
- Type the desired password in the **Password to open** or **Password to modify** box as appropriate.
- Click **OK**.
- Type the password again in the **Confirm Password** dialog box.
- Click **OK**.
- Click **Save**.
- Click **Yes**.

#### 7.1.2 Remove password protection for a spreadsheet: to open, to modify.

- Press the function key **F12**, select **Tools** and select **General Options**.
- Press the **Delete** key to remove the current password and click **OK**.
- Click **Save**.
- Click **Yes**.

#### 7.1.3 Protect cells with a password.

- On the **Review** tab, in the **Changes** group, click **Unprotect Sheet** if necessary.
- Click the **Select All** button to select the whole worksheet.
- On the **Home** tab, click the **Format Settings** button in the **Font** group.
- On the **Protection** tab, clear the **Locked** box and click **OK**.
- Select the cells to be locked.
- Bring up the **Format Cells** dialog box.
- On the **Protection** tab, select the **Locked** box and click **OK**.
- On the **Review** tab, in the **Changes** group, click **Protect Sheet**.
- Select the appropriate options in the **Allow all users of this worksheet to** list.
- In the **Password to unprotect sheet** box, enter a password for the sheet.
- Click **OK** and retype the password to confirm.

#### 7.1.3 Unprotect cells with a password.

- Select the cells to unlock.
- Right-click any of the selected cells and click **Format Cells**.
- Select the **Protection** tab.
- Uncheck the **Locked** option and click **OK**.
- Protect the worksheet with a password as desired.

#### 7.1.3 Protect a worksheet with a password.

- Select **Protect Sheet** in the **Changes** group in the **Review** tab.
- Type a password in the **Protect Sheet** dialog box and click **OK**.
- Type the password again in the **Confirm Password** dialog box.
- Click **OK**.

#### 7.1.3 Unprotect a worksheet with a password.

- Select **Unprotect Sheet** in the **Changes** group in the **Review** tab.
- Type the required **password** in the **Protect Sheet** dialog box.
- Click **OK**.

#### 7.1.4 Hide formulas.

- Click the **Select All** button in the upper left-hand corner of the worksheet.
- Right-click any cell in the worksheet, and select **Format Cells**.
- Select the **Protection** tab, and clear the **Locked** checkbox and click **OK**.
- Select the range of cells with formulas to hide.
- Right-click the selected cells.
- Select **Format Cells**.
- Click the **Protection** tab.
- Check the **Locked** and the **Hidden** checkboxes and click **OK**.
- Select the **Review** tab and click **Protect Sheet** and make sure the **Protect worksheet and contents of locked cells** check box is selected.
- Enter a password if desired and click **OK**.

#### 7.1.4 Unhide formulas.

- Click **Unprotect Sheet** in the **Changes** group in the **Review** tab.
- Select the range of cells with formulas to unhide.
- Right-click the range of cells.
- Click **Format Cells**.
- On the **Protection** tab, clear the **Hidden** check box and click **OK**.

For more information, visit: [www.icdl.org](http://www.icdl.org)