# Keyboard shortcuts and Functions in Microsoft Excel

Many users find that using an external keyboard with keyboard shortcuts for Excel helps them work more efficiently. For users with mobility or vision disabilities, keyboard shortcuts can be easier than using the touchscreen and are an essential alternative to using a mouse.

**Notes**:

- The shortcuts in this topic refer to the US keyboard layout. Keys for other layouts might not correspond exactly to the keys on a US keyboard.

- A plus sign (+) in a shortcut means that you need to press multiple keys at the same time.

- A comma sign (,) in a shortcut means that you need to press multiple keys in order.

If an action that you use often does not have a shortcut key, you can record a macro to create one. For instructions, go to Automate tasks with the Macro Recorder.

### Frequently used Shortcuts

| To do this | Press |
|---|---|
| Close a workbook. | Ctrl+W |
| Open a workbook. | Ctrl+O |
| Go to the **Home** tab. | Alt+H |
| Save a workbook. | Ctrl+S |
| Copy selection. | Ctrl+C |
| Paste selection. | Ctrl+V |
| Undo recent action. | Ctrl+Z |
| Remove cell contents. | Delete |
| Choose a fill color. | Alt+H, H |
| Cut selection. | Ctrl+X |
| Go to the **Insert** tab. | Alt+N |
| Apply bold formatting. | Ctrl+B |
| Center align cell contents. | Alt+H, A, C |
| Go to the **Page Layout** tab. | Alt+P |
| Go to the **Data** tab. | Alt+A |
| Go to the **View** tab. | Alt+W |
| Open the context menu. | Shift+F10 or windows menu key |
| Add borders. | Alt+H, B |
| Delete column. | Alt+H, D, C |
| Go to the **Formula** tab. | Alt+M |
| Hide the selected rows. | Ctrl+9 |
| Hide the selected columns. | Ctrl+0 |

### Ribbon keyboard shortcuts

- The ribbon groups are related to options on tabs. For example, on the Home tab, the Number group includes the Number Format option. Press the Alt key to display the ribbon shortcuts, called Key Tips, as letters in small images next to the tabs and options as shown in the image below.

- **Excel ribbon key tips.**
- You can combine the Key Tips letters with the Alt key to make shortcuts called Access Keys for the ribbon options. For example, press Alt+H to open the Home tab, and Alt+Q to move to the Tell me or Search field. Press Alt again to see KeyTips for the options for the selected tab.

- Depending on the version of Microsoft 365 you are using, the Search text field at the top of the app window might be called Tell Me instead. Both offer a largely similar experience, but some options and search results can vary.

- In newer versions of Office, most of the old Alt key menu shortcuts still work, too. However, you need to know the full shortcut. For example, press Alt, and then press one of the old menu keys, for example, E (Edit), V (View), I (Insert), and so on. A notification pops up saying you're using an access key from an earlier version of Microsoft 365. If you know the entire key sequence, go ahead, and use it. If you don't know the sequence, press Esc and use Key Tips instead.

# Keyboard shortcuts and Functions in Microsoft Excel

## Use the Access keys for ribbon tabs

- To go directly to a tab on the ribbon, press one of the following access keys. Additional tabs might appear depending on your selection in the worksheet.

| To do this | Press |
|---|---|
| Move to the **Tell me** or **Search** field on the ribbon and type a search term for assistance or Help content. | Alt+Q, then enter the search term. |
| Open the **File menu**. | Alt+F |
| Open the **Home** tab and format text and numbers and use the Find tool. | Alt+H |
| Open the **Insert** tab and insert PivotTables, charts, add-ins, Sparklines, pictures, shapes, headers, or text boxes. | Alt+N |
| Open the **Page Layout** tab and work with themes, page setup, scale, and alignment. | Alt+P |
| Open the **Formulas** tab and insert, trace, and customize functions and calculations. | Alt+M |
| Open the **Data** tab and connect to, sort, filter, analyze, and work with data. | Alt+A |
| Open the **Review** tab and check spelling, add notes and threaded comments, and protect sheets and workbooks. | Alt+R |
| Open the **View** tab and preview page breaks and layouts, show and hide gridlines and headings, set zoom magnification, manage windows and panes, and view macros. | Alt+W |

## Work in the ribbon with the keyboard

| To do this | Press |
|---|---|
| Select the active tab on the ribbon and activate the access keys. | Alt or F10. To move to a different tab, use access keys or the arrow keys. |
| Move the focus to commands on the ribbon or add-in pane. | Tab key or Shift+Tab |
| Move down, up, left, or right, respectively, among the items on the ribbon. | Arrow keys |
| Show the tooltip for the ribbon element currently in focus. | Ctrl+Shift+F10 |
| Activate a selected button. | Spacebar or Enter |
| Open the list for a selected command. | Down arrow key |
| Open the menu for a selected button. | Alt+Down arrow key |
| When a menu or submenu is open, move to the next command. | Down arrow key |
| Expand or collapse the ribbon. | Ctrl+F1 |
| Open a context menu. | Shift+F10  Or, on a Windows keyboard, the Windows Menu key (usually between the Alt Gr and right Ctrl keys) |
| Move to the submenu when a main menu is open or selected. | Left arrow key |
| Move from one group of controls to another. | Ctrl+Left or Right arrow key |

# Keyboard shortcuts and Functions in Microsoft Excel

## Keyboard shortcuts for navigating in cells

| To do this | Press |
|---|---|
| Move to the previous cell in a worksheet or the previous option in a dialog box. | Shift+Tab |
| Move one cell up in a worksheet. | Up arrow key |
| Move one cell down in a worksheet. | Down arrow key |
| Move one cell left in a worksheet. | Left arrow key |
| Move one cell right in a worksheet. | Right arrow key |
| Move to the edge of the current data region in a worksheet. | Ctrl+Arrow key |
| Enter the **End** mode, move to the next nonblank cell in the same column or row as the active cell, and turn off **End** mode. If the cells are blank, move to the last cell in the row or column. | End, Arrow key |
| Move to the last cell on a worksheet, to the lowest used row of the rightmost used column. | Ctrl+End |
| Extend the selection of cells to the last used cell on the worksheet (lower-right corner). | Ctrl+Shift+End |
| Move to the cell in the upper-left corner of the window when Scroll lock is turned on. | Home+Scroll lock |
| Move to the beginning of a worksheet. | Ctrl+Home |
| Move one screen down in a worksheet. | Page down |
| Move to the next sheet in a workbook. | Ctrl+Page down |
| Move one screen to the right in a worksheet. | Alt+Page down |
| Move one screen up in a worksheet. | Page up |
| Move one screen to the left in a worksheet. | Alt+Page up |
| Move to the previous sheet in a workbook. | Ctrl+Page up |
| Move one cell to the right in a worksheet. Or, in a protected worksheet, move between unlocked cells. | Tab key |
| Open the list of validation choices on a cell that has data validation option applied to it. | Alt+Down arrow key |
| Cycle through floating shapes, such as text boxes or images. | Ctrl+Alt+5, then the Tab key repeatedly |
| Exit the floating shape navigation and return to the normal navigation. | Esc |
| Scroll horizontally. | Ctrl+Shift, then scroll your mouse wheel up to go left, down to go right |
| Zoom in. | Ctrl+Alt+Equal sign ( = ) |

# Keyboard shortcuts and Functions in Microsoft Excel

| | |
|---|---|
| Zoom out. | Ctrl+Alt+Minus sign (-) |

## Keyboard shortcuts for formatting cells

| To do this | Press |
|---|---|
| Open the **Format Cells** dialog box. | Ctrl+1 |
| Format fonts in the **Format Cells** dialog box. | Ctrl+Shift+F or Ctrl+Shift+P |
| Edit the active cell and put the insertion point at the end of its contents. Or, if editing is turned off for the cell, move the insertion point into the formula bar. If editing a formula, toggle Point mode off or on so you can use the arrow keys to create a reference. | F2 |
| Insert a note. | Shift+F2 |
| Open and edit a cell note. | Shift+F2 |
| Insert a threaded comment. | Ctrl+Shift+F2 |
| Open and reply to a threaded comment. | Ctrl+Shift+F2 |
| Open the **Insert** dialog box to insert blank cells. | Ctrl+Shift+Plus sign (+) |
| Open the **Delete** dialog box to delete selected cells. | Ctrl+Minus sign (-) |
| Enter the current time. | Ctrl+Shift+Colon (:) |
| Enter the current date. | Ctrl+Semicolon (;) |
| Switch between displaying cell values or formulas in the worksheet. | Ctrl+Grave accent (`) |
| Copy a formula from the cell above the active cell into the cell or the formula bar. | Ctrl+Apostrophe (') |
| Move the selected cells. | Ctrl+X |
| Copy the selected cells. | Ctrl+C |
| Paste content at the insertion point, replacing any selection. | Ctrl+V |
| Open the **Paste Special** dialog box. | Ctrl+Alt+V |
| Italicize text or remove italic formatting. | Ctrl+I or Ctrl+3 |
| Bold text or remove bold formatting. | Ctrl+B or Ctrl+2 |
| Underline text or remove underline. | Ctrl+U or Ctrl+4 |
| Apply or remove strikethrough formatting. | Ctrl+5 |
| Switch between hiding objects, displaying objects, and displaying placeholders for objects. | Ctrl+6 |
| Apply an outline border to the selected cells. | Ctrl+Shift+Ampersand sign (&) |
| Remove the outline border from the selected cells. | Ctrl+Shift+Underscore (_) |
| Display or hide the outline symbols. | Ctrl+8 |
| Use the **Fill Down** command to copy the contents and format of the topmost cell of a selected range into the cells below. | Ctrl+D |
| Apply the **General** number format. | Ctrl+Shift+Tilde sign (~) |
| Apply the **Currency** format with two decimal places (negative numbers in parentheses). | Ctrl+Shift+Dollar sign ($) |
| Apply the **Percentage** format with no decimal places. | Ctrl+Shift+Percent sign (%) |
| Apply the **Scientific** number format with two decimal places. | Ctrl+Shift+Caret sign (^) |
| Apply the **Date** format with the day, month, and year. | Ctrl+Shift+Number sign (#) |
| Apply the **Time** format with the hour and minute, and AM or PM. | Ctrl+Shift+At sign (@) |
| Apply the **Number** format with two decimal places, thousands separator, and minus sign (-) for negative values. | Ctrl+Shift+Exclamation point (!) |
| Open the **Insert hyperlink** dialog box. | Ctrl+K |
| Check spelling in the active worksheet or selected range. | F7 |

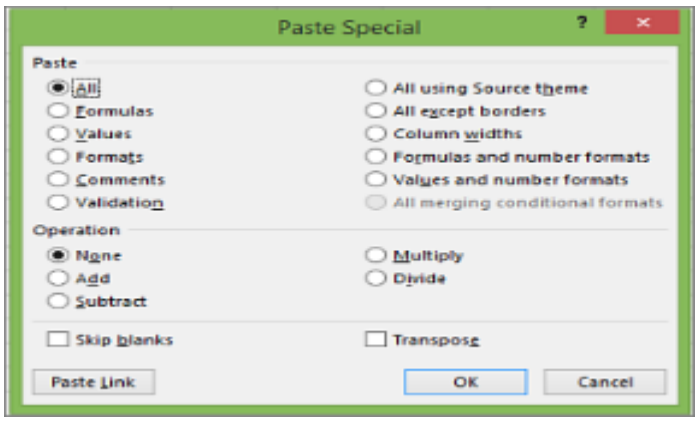
# Keyboard shortcuts and Functions in Microsoft Excel

| | |
|---|---|
| Display the **Quick Analysis** options for selected cells that contain data. | Ctrl+Q |
| Display the **Create Table** dialog box. | Ctrl+L or Ctrl+T |
| Open the **Workbook Statistics** dialog box. | Ctrl+Shift+G |

### Keyboard shortcuts in the Paste Special dialog box in Excel

In Excel, you can paste a specific aspect of the copied data like its formatting or value using the Paste Special options. After you've copied the data, press Ctrl+Alt+V, or Alt+E+S to open the Paste Special dialog box.

Paste Special dialog box.
Tip: You can also select Home > Paste > Paste Special




### Keyboard shortcuts in the Paste Special dialog box in Excel

| To do this | Press |
|---|---|
| Paste all cell contents and formatting. | A |
| Paste only the formulas as entered in the formula bar. | F |
| Paste only the values (not the formulas). | V |
| Paste only the copied formatting. | T |
| Paste only comments and notes attached to the cell. | C |
| Paste only the data validation settings from copied cells. | N |
| Paste all cell contents and formatting from copied cells. | H |
| Paste all cell contents without borders. | X |
| Paste only column widths from copied cells. | W |
| Paste only formulas and number formats from copied cells. | R |
| Paste only the values (not formulas) and number formats from copied cells. | U |

### Keyboard shortcuts for making selections and performing actions

| To do this | Press |
|---|---|
| Select the entire worksheet. | Ctrl+A or Ctrl+Shift+Spacebar |
| Select the current and next sheet in a workbook. | Ctrl+Shift+Page down |
| Select the current and previous sheet in a workbook. | Ctrl+Shift+Page up |
| Extend the selection of cells by one cell. | Shift+Arrow key |
| Extend the selection of cells to the last nonblank cell in the same column or row as the active cell, or if the next cell is blank, to the next nonblank cell. | Ctrl+Shift+Arrow key |

# Keyboard shortcuts and Functions in Microsoft Excel

| | |
|---|---|
| Turn extend mode on and use the arrow keys to extend a selection. Press again to turn off. | F8 |
| Add a non-adjacent cell or range to a selection of cells by using the arrow keys. | Shift+F8 |
| Start a new line in the same cell. | Alt+Enter |
| Fill the selected cell range with the current entry. | Ctrl+Enter |
| Complete a cell entry and select the cell above. | Shift+Enter |
| Select an entire column in a worksheet. | Ctrl+Spacebar |
| Select an entire row in a worksheet. | Shift+Spacebar |
| Select all objects on a worksheet when an object is selected. | Ctrl+Shift+Spacebar |
| Extend the selection of cells to the beginning of the worksheet. | Ctrl+Shift+Home |
| Select the current region if the worksheet contains data. Press a second time to select the current region and its summary rows. Press a third time to select the entire worksheet. | Ctrl+A or Ctrl+Shift+Spacebar |
| Select the current region around the active cell. | Ctrl+Shift+Asterisk sign (*) |
| Select the first command on the menu when a menu or submenu is visible. | Home |
| Repeat the last command or action, if possible. | Ctrl+Y |
| Undo the last action. | Ctrl+Z |
| Expand grouped rows or columns. | While hovering over the collapsed items, press and hold the Shift key and scroll down. |
| Collapse grouped rows or columns. | While hovering over the expanded items, press and hold the Shift key and scroll up. |

## Keyboard shortcuts for working with data, functions, and the formula bar

| **To do this** | **Press** |
|---|---|
| Turn on or off tooltips for checking formulas directly in the formula bar or in the cell you're editing. | Ctrl+Alt+P |
| Edit the active cell and put the insertion point at the end of its contents. Or, if editing is turned off for the cell, move the insertion point into the formula bar. If editing a formula, toggle Point mode off or on so you can use the arrow keys to create a reference. | F2 |
| Expand or collapse the formula bar. | Ctrl+Shift+U |
| Cancel an entry in the cell or formula bar. | Esc |
| Complete an entry in the formula bar and select the cell below. | Enter |
| Move the cursor to the end of the text when in the formula bar. | Ctrl+End |
| Select all text in the formula bar from the cursor position to the end. | Ctrl+Shift+End |
| Calculate all worksheets in all open workbooks. | F9 |
| Calculate the active worksheet. | Shift+F9 |
| Calculate all worksheets in all open workbooks, regardless of whether they have changed since the last calculation. | Ctrl+Alt+F9 |
| Check dependent formulas, and then calculate all cells in all open workbooks, including cells not marked as needing to be calculated. | Ctrl+Alt+Shift+F9 |
| Display the menu or message for an **Error Checking** button. | Alt+Shift+F10 |

# Keyboard shortcuts and Functions in Microsoft Excel

| | |
|---|---|
| Display the **Function Arguments** dialog box when the insertion point is to the right of a function name in a formula. | Ctrl+A |
| Insert argument names and parentheses when the insertion point is to the right of a function name in a formula. | Ctrl+Shift+A |
| Insert the **AutoSum** formula | Alt+Equal sign ( = ) |
| Invoke Flash Fill to automatically recognize patterns in adjacent columns and fill the current column | Ctrl+E |
| Cycle through all combinations of absolute and relative references in a formula if a cell reference or range is selected. | F4 |
| Insert a function. | Shift+F3 |
| Copy the value from the cell above the active cell into the cell or the formula bar. | Ctrl+Shift+Straight quotation mark (") |
| Create an embedded chart of the data in the current range. | Alt+F1 |
| Create a chart of the data in the current range in a separate **Chart** sheet. | F11 |
| Define a name to use in references. | Alt+M, M, D |
| Paste a name from the **Paste Name** dialog box (if names have been defined in the workbook). | F3 |
| Move to the first field in the next record of a data form. | Enter |
| Create, run, edit, or delete a macro. | Alt+F8 |
| Open the **Microsoft Visual Basic For Applications Editor**. | Alt+F11 |
| Open the **Power Query Editor** | Alt+F12 |

## Keyboard shortcuts for refreshing external data

| To do this | Press |
|---|---|
| Stop a refresh operation. | Esc |
| Refresh data in the current worksheet. | Ctrl+F5 |
| Refresh all data in the workbook. | Ctrl+Alt+F5 |

## Power Pivot keyboard shortcuts

| To do this | Press |
|---|---|
| Open the context menu for the selected cell, column, or row. | Shift+F10 |
| Select the entire table. | Ctrl+A |
| Copy selected data. | Ctrl+C |
| Delete the table. | Ctrl+D |
| Move the table. | Ctrl+M |
| Rename the table. | Ctrl+R |
| Save the file. | Ctrl+S |
| Redo the last action. | Ctrl+Y |
| Undo the last action. | Ctrl+Z |
| Select the current column. | Ctrl+Spacebar |
| Select the current row. | Shift+Spacebar |
| Select all cells from the current location to the last cell of the column. | Shift+Page down |

# Keyboard shortcuts and Functions in Microsoft Excel

| | |
|---|---|
| Select all cells from the current location to the first cell of the column. | Shift+Page up |
| Select all cells from the current location to the last cell of the row. | Shift+End |
| Select all cells from the current location to the first cell of the row. | Shift+Home |
| Move to the previous table. | Ctrl+Page up |
| Move to the next table. | Ctrl+Page down |
| Move to the first cell in the upper-left corner of selected table. | Ctrl+Home |
| Move to the last cell in the lower-right corner of selected table. | Ctrl+End |
| Move to the first cell of the selected row. | Ctrl+Left arrow key |
| Move to the last cell of the selected row. | Ctrl+Right arrow key |
| Move to the first cell of the selected column. | Ctrl+Up arrow key |
| Move to the last cell of selected column. | Ctrl+Down arrow key |
| Close a dialog box or cancel a process, such as a paste operation. | Ctrl+Esc |
| Open the **AutoFilter Menu** dialog box. | Alt+Down arrow key |
| Open the **Go To** dialog box. | F5 |
| Recalculate all formulas in the Power Pivot window. For more information, see Recalculate Formulas in Power Pivot. | F9 |

## Function keys

| Key | Description |
|---|---|
| F1 | F1 alone: displays theExcel Help task pane.<br><br>Ctrl+F1: displays or hides the ribbon.<br><br>Alt+F1: creates an embedded chart of the data in the current range.<br><br>Alt+Shift+F1: inserts a new worksheet.<br><br>Ctrl+Shift+F1: toggles full screen mode |
| F2 | 1.F2 alone: edit the active cell and put the insertion point at the end of its contents. Or, if editing is turned off for the cell, move the insertion point into the formula bar. If editing a formula, toggle Point mode off or on so you can use the arrow keys to create a reference.<br>2. Shift+F2: adds or edits a cell note<br>3. Ctrl+F2: edit the active cell in the formula bar. If already editing the active cell, shift focus between formula and in cell editor. |
| F3 | 1. F3 alone: displays the Paste Name dialog box. Available only if names have been defined in the workbook.<br>2. Shift+F3: displays the Insert Function dialog box. |
| F4 | 1. F4 alone: repeats the last command or action, if possible.When a cell reference or range is selected in a formula, F4 cycles through all the various combinations of absolute and relative references**.**<br>2. Ctrl+F4: closes the selected workbook window.<br>3. Alt+F4: closes Excel. |

# Keyboard shortcuts and Functions in Microsoft Excel

| | |
|---|---|
| F5 | 1. F5 alone: displays the Go To dialog box. 2. Ctrl+F5: restores the window size of the selected workbook window. |
| F6 | 1.F6 alone: switches between the worksheet, ribbon, task pane, and Zoom controls. In a worksheet that has been split, F6 includes the split panes when switching between panes and the ribbon area.<br>2. Shift+F6: switches between the worksheet, Zoom controls, task pane, and ribbon.<br>3. Ctrl+F6: switches between two Excel windows.<br>4. Ctrl+Shift+F6: switches between all Excel windows. |
| F7 | 1. F7 alone: Opens the Spelling dialog box to check spelling in the active worksheet or selected range.<br>2. Ctrl+F7: performs the Move command on the workbook window when it is not maximized. Use the arrow keys to move the window, and when finished press Enter, or Esc to cancel. |
| F8 | 1. F8 alone: turns extend mode on or off. In extend mode, **Extended Selection** appears in the status line, and the arrow keys extend the selection.<br>2. Shift+F8: enables you to add a non-adjacent cell or range to a selection of cells by using the arrow keys.<br>3.Ctrl+F8: performs the **Size** command when a workbook is not maximized. |
| F9 | 1.F9 alone: calculates all worksheets in all open workbooks.<br>2.Shift+F9: calculates the active worksheet.<br>3.Ctrl+Alt+F9: calculates all worksheets in all open workbooks, regardless of whether they have changed since the last calculation.<br>4.Ctrl+Alt+Shift+F9: rechecks dependent formulas, and then calculates all cells in all open workbooks, including cells not marked as needing to be calculated.<br>5.Ctrl+F9: minimizes a workbook window to an icon. |
| F10 | 1. F10 alone: turns key tips on or off. (Pressing Alt does the same thing.)<br>2.Shift+F10: displays the context menu for a selected item.<br>3.Alt+Shift+F10: displays the menu or message for an **Error Checking** button.<br>4.Ctrl+F10: maximizes or restores the selected workbook window. |
| F11 | 1.F11 alone: creates a chart of the data in the current range in a separate **Chart** sheet.<br>2.Shift+F11: inserts a new worksheet.<br>3.Alt+F11: opens the **Microsoft Visual Basic For Applications Editor**, in which you can create a macro by using Visual Basic for Applications (VBA). |
| F12 | F12 alone: displays the **Save As** dialog box. |

## Other useful shortcut keys

# Keyboard shortcuts and Functions in Microsoft Excel

| Key | Description |
|---|---|
| **Alt** | Displays the Key Tips (new shortcuts) on the ribbon. for example<br>Alt, W, P switches the worksheet to **Page Layout** view.<br>Alt, W, L switches the worksheet to **Normal** view.<br>Alt, W, I switches the worksheet to **Page Break Preview** view. |
| **Arrow keys** | 1.Move one cell up, down, left, or right in a worksheet.<br>2.Ctrl+Arrow key moves to the edge of the current data region in a worksheet.<br>3.Shift+Arrow key extends the selection of cells by one cell.<br>4.Ctrl+Shift+Arrow key extends the selection of cells to the last nonblank cell in the same column or row as the active cell, or if the next cell is blank, extends the selection to the next nonblank cell. |
| **Arrow Keys** | 5.Left or Right arrow key selects the tab to the left or right when the ribbon is selected. When a submenu is open or selected, these arrow keys switch between the main menu and the submenu. When a ribbon tab is selected, these keys navigate the tab buttons.<br>6.Down or Up arrow key selects the next or previous command when a menu or submenu is open. When a ribbon tab is selected, these keys navigate up or down the tab group.<br>7.In a dialog box, arrow keys move between options in an open drop-down list, or between options in a group of options.<br>8.Down or Alt+Down arrow key opens a selected drop-down list. |
| **Backspace** | Deletes one character to the left in the formula bar. |
| | Clears the content of the active cell. |
| | In cell editing mode, it deletes the character to the left of the insertion point. |
| **Delete** | Removes the cell contents (data and formulas) from selected cells without affecting cell formats, threaded comments, or notes. |
| | In cell editing mode, it deletes the character to the right of the insertion point. |
| **End** | End turns **End** mode on or off. In **End** mode, you can press an arrow key to move to the next nonblank cell in the same column or row as the active cell. **End** mode turns off automatically after pressing the arrow key. Make sure to press End again before pressing the next arrow key. **End** mode is shown in the status bar when it is on. |
| | If the cells are blank, pressing End followed by an arrow key moves to the last cell in the row or column. |
| | End also selects the last command on the menu when a menu or submenu is visible. |
| | Ctrl+End moves to the last cell on a worksheet, to the lowest used row of the rightmost used column. If the cursor is in the formula bar, Ctrl+End moves the cursor to the end of the text. |
| | Ctrl+Shift+End extends the selection of cells to the last used cell on the worksheet (lower-right corner). If the cursor is in the formula bar, Ctrl+Shift+End selects all text in the formula bar from the cursor position to the end—this does not affect the height of the formula bar. |
| **Enter** | Completes a cell entry from the cell or the formula bar and selects the cell below (by default). |

# Keyboard shortcuts and Functions in Microsoft Excel

| | |
|---|---|
| | In a data form, it moves to the first field in the next record. |
| | Opens a selected menu (press F10 to activate the menu bar) or performs the action for a selected command. |
| | In a dialog box, it performs the action for the default command button in the dialog box (the button with the bold outline, often the **OK** button). |
| | Alt+Enter starts a new line in the same cell. |
| | Ctrl+Enter fills the selected cell range with the current entry. |
| | Shift+Enter completes a cell entry and selects the cell above. |
| **Esc** | Cancels an entry in the cell or formula bar. |
| | Closes an open menu or submenu, dialog box, or message window. |
| **Home** | Moves to the beginning of a row in a worksheet. |
| | Moves to the cell in the upper-left corner of the window when Scroll lock is turned on. |
| | Selects the first command on the menu when a menu or submenu is visible. |
| | Ctrl+Home moves to the beginning of a worksheet. |
| | Ctrl+Shift+Home extends the selection of cells to the beginning of the worksheet. |
| **Page down** | Moves one screen down in a worksheet. |
| | Alt+Page down moves one screen to the right in a worksheet. |
| | Ctrl+Page down moves to the next sheet in a workbook. |
| | Ctrl+Shift+Page down selects the current and next sheet in a workbook. |
| **Page up** | Moves one screen up in a worksheet. |
| | Alt+Page up moves one screen to the left in a worksheet. |
| | Ctrl+Page up moves to the previous sheet in a workbook. |
| | Ctrl+Shift+Page up selects the current and previous sheet in a workbook. |
| **Shift** | Hold the Shift key while you drag a selected row, column, or selected cells to move the selected cells and drop to insert them in a new location. |
| **Spacebar** | 1. In a dialog box, performs the action for the selected button, or selects or clears a checkbox. |
| | Ctrl+Spacebar selects an entire column in a worksheet. |
| | Shift+Spacebar selects an entire row in a worksheet. |
| | Ctrl+Shift+Spacebar selects the entire worksheet. |
| | If the worksheet contains data, Ctrl+Shift+Spacebar selects the current region. Pressing Ctrl+Shift+Spacebar a second time selects the current region and its summary rows. Pressing Ctrl+Shift+Spacebar a third time selects the entire worksheet. |
| | When an object is selected, Ctrl+Shift+Spacebar selects all objects on a worksheet. |
| | Alt+Spacebar displays the **Control** menu for the Excel window. |
| **Tab key** | 1. B373Moves one cell to the right in a worksheet. |
| | 2. Moves between unlocked cells in a protected worksheet. |
| | 3. Moves to the next option or option group in a dialog box. |
| | 4. Shift+Tab moves to the previous cell in a worksheet or the previous option in a dialog box. |
| | 5. Ctrl+Tab switches to the next tab in a dialog box, or (if no dialog box is open) switches between two Excel windows. |

# Keyboard shortcuts and Functions in Microsoft Excel

| | |
|---|---|
| | 6. Ctrl+Shift+Tab switches to the previous tab in a dialog box, or (if no dialog box is open) switches between all Excel windows. |

## 10 Featured functions

| Function | Description | Syntax |
|---|---|---|
| SUM | Use this function to add the values in cells. | **SUM(number1,[number2],...)** |
| IF | Use this function to return one value if a condition is true and another value if it's false. Here's a video about using the IF function. | IF(logical_test, value_if_true, [value_if_false]) |
| SUMIFS | Use this function when you need to add the cells in a range that meet multiple criteria. | **SUMIFS(sum_range, criteria_range1, criteria1, [criteria_range2, criteria2], ...)** |
| XLOOKUP | Use this function when you need to search a range or an array, and return an item corresponding to the first match it finds. If a match doesn't exist, then XLOOKUP can return the closest (approximate) match. | =XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode]) C11 |
| COUNTIFS | Use this function to count the number of cells within a range that meet multiple criteria. | COUNTIFS(criteria_range1, criteria1, [criteria_range2, criteria2]...) |
| COUNT | Use this function to count how many numbers are in the list of arguments. You can use COUNTA to count how many values are in the list of arguments. | COUNT(value1, [value2], ...) |
| LET | Use this function to assign names to calculation results. | =LET(name1, name_value1, calculation_or_name2, [name_value2, calculation_or_name3...]) |
| FILTER | Use this function to filter a range of data based on criteria you define. | =FILTER(array,include,[if_empty]) |
| UNIQUE | Use this function to return a list of unique values in a list or range. | =UNIQUE(array,[by_col],[exactly_once]) |
| TEXTBEFORE | Use this function to return text that occurs before a given character or string. You can use TEXTAFTER to return text that occurs after a given character or string. | =TEXTBEFORE(text,delimiter,[instance_num], [match_mode], [match_end], [if_not_found]) |

## Compatability

In newer versions of Excel, these functions were replaced with new functions that provide improved accuracy and have names that better reflect their usage. You can still use them for compatibility with earlier versions of Excel, but if backward compatibility isn't required, you should start using the new functions instead. For more information about the new functions, see Statistical functions (reference) and Math and trigonometry functions (reference) .

| Function | Description | Syntax |
|---|---|---|

# Keyboard shortcuts and Functions in Microsoft Excel

| | | |
|---|---|---|
| BETADIST | Returns the beta cumulative distribution function | BETADIST(x,alpha,beta,[A],[B]) |
| BETAINV | Returns the inverse of the cumulative distribution function for a specified beta distribution | BETAINV(probability,alpha,beta,[A],[B]) |
| BINOMDIST | Returns the individual term binomial distribution probability | BINOMDIST(number_s,trials,probability_s,cumulative) |
| CHIDIST | Returns the one-tailed probability of the chi-squared distribution | CHIDIST(x, degrees_freedom) |
| CHIINV | Returns the inverse of the one-tailed probability of the chi-squared distribution | CHIINV(probability, degrees_freedom) |
| CHITEST | Returns the test for independence | CHITEST(actual_range, expected_range) |
| CONCATENATE | Joins two or more text strings into one string | CONCATENATE(text1, [text2], ...)<br><br>(Modern alternative: TEXTJOIN, CONCAT) |
| CONFIDENCE | Returns the confidence interval for a population mean | CONFIDENCE(alpha, standard_dev, size) |
| COVAR | Returns covariance, the average of the products of paired deviations | COVAR(array1, array2) |
| CRITBINOM | Returns the smallest value for which the cumulative binomial distribution is less than or equal to a criterion value | CRITBINOM(trials, probability_s, alpha) |
| EXPONDIST | Returns the exponential distribution | EXPONDIST(x, lambda, cumulative) |
| FDIST | Returns the F probability distribution | FDIST(x, degrees_freedom1, degrees_freedom2) |
| FINV | Returns the inverse of the F probability distribution | FINV(probability, degrees_freedom1, degrees_freedom2) |
| FLOOR | Rounds a number down, toward zero | FLOOR(number, significance) |
| FORECAST | Calculates, or predicts, a future value by using existing values. | FORECAST(x, known_y's, known_x's) |
| FTEST | Returns the result of an F-test | FTEST(array1, array2) |
| GAMMADIST | Returns the gamma distribution | GAMMADIST(x, alpha, beta, cumulative) |
| GAMMAINV | Returns the inverse of the gamma cumulative distribution | GAMMAINV(probability, alpha, beta) |
| HYPGEOMDIST | Returns the hypergeometric distribution | HYPGEOMDIST(sample_s, number_sample, population_s, number_pop) |
| LOGINV | Returns the inverse of the lognormal cumulative distribution function | LOGINV(probability, mean, standard_dev) |
| LOGNORMDIST | Returns the cumulative lognormal distribution | LOGNORMDIST(x, mean, standard_dev) |
| MODE | Returns the most common value in a data set | MODE(number1, [number2], ...) |
| NEGBINOMDIST | Returns the negative binomial distribution | NEGBINOMDIST(number_f, number_s, probability_s) |
| NORMDIST | Returns the normal cumulative distribution | NORMDIST(x, mean, standard_dev, cumulative) |
| NORMINV | Returns the inverse of the normal cumulative distribution | NORMINV(probability, mean, standard_dev) |
| NORMSDIST | Returns the standard normal cumulative distribution | NORMSDIST(z) |
| NORMSINV | Returns the inverse of the standard normal cumulative distribution | NORMSINV(probability) |

| | | |
|---|---|---|
| PERCENTILE | Returns the k-th percentile of values in a range | PERCENTILE(array, k) |
| PERCENTRANK | Returns the percentage rank of a value in a data set | PERCENTRANK(array, x, [significance]) |
| POISSON | Returns the Poisson distribution | POISSON(x, mean, cumulative) |
| QUARTILE | Returns the quartile of a data set | QUARTILE(array, quart) QUARTILE(array, quart) (0 = Min, 1 = Q1, 2 = Median, 3 = Q3, 4 = Max) |
| RANK | Returns the rank of a number in a list of numbers | RANK(number, ref, [order]) |
| STDEV | Estimates standard deviation based on a sample | STDEV(number1, [number2], ...) |
| STDEVP | Calculates standard deviation based on the entire population | STDEVP(number1, [number2], ...) |
| TDIST | Returns the Student's t-distribution | TDIST(x, degrees_freedom, tails) |
| TINV | Returns the inverse of the Student's t-distribution | TINV(probability, degrees_freedom) |
| TTEST | Returns the probability associated with a Student's t-test | TTEST(array1, array2, tails, type) |
| VAR | Estimates variance based on a sample | VAR(number1, [number2], ...) |
| VARP | Calculates variance based on the entire population | VARP(number1, [number2], ...) |
| WEIBULL | Returns the Weibull distribution | WEIBULL(x, alpha, beta, cumulative) |
| ZTEST | Returns the one-tailed probability-value of a z-test | ZTEST(array, x, [sigma]) |

## Cubes

| Function | Description | Syntax |
|---|---|---|
| CUBEKPIMEMBER | Returns a key performance indicator (KPI) property and displays the KPI name in the cell. A KPI is a quantifiable measurement, such as monthly gross profit or quarterly employee turnover, that is used to monitor an organization's performance. | CUBEKPIMEMBER(connection, kpi_name, kpi_property, [caption]) |
| CUBEMEMBER | Returns a member or tuple from the cube. Use to validate that the member or tuple exists in the cube. | CUBEMEMBER(connection, member_expression, [caption]) |
| CUBEMEMBERPROPERTY | Returns the value of a member property from the cube. Use to validate that a member name exists within the cube and to return the specified property for this member. | CUBEMEMBERPROPERTY(connection, member_expression, property) |
| CUBERANKEDMEMBER | Returns the nth, or ranked, member in a set. Use to return one or more elements in a set, such as the top sales performer or the top 10 students. | CUBERANKEDMEMBER(connection, set_expression, rank, [caption]) |
| CUBESET | Defines a calculated set of members or tuples by sending a set expression to the cube on the server, which creates the set, and then returns that set to Microsoft Excel. | CUBESET(connection, set_expression, [caption], [sort_order], [sort_by]) |
| CUBESETCOUNT | Returns the number of items in a set. | CUBESETCOUNT(set) |

| | | |
|---|---|---|
| CUBEVALUE | Returns an aggregated value from the cube. | CUBEVALUE(connection, [member_expression1], [member_expression2], ...) |

## Database Functions

| Function | Description | syntax |
|---|---|---|
| DAVERAGE | Returns the average of selected database entries | DAVERAGE(database, field, criteria) |
| DCOUNT | Counts the cells that contain numbers in a database | DCOUNT(database, field, criteria) |
| DCOUNTA | Counts nonblank cells in a database | DCOUNTA(database, field, criteria) |
| DGET | Extracts from a database a single record that matches the specified criteria | DGET(database, field, criteria) |
| DMAX | Returns the maximum value from selected database entries | DMAX(database, field, criteria) |
| DMIN | Returns the minimum value from selected database entries | DMIN(database, field, criteria) |
| DPRODUCT | Multiplies the values in a particular field of records that match the criteria in a database | DPRODUCT(database, field, criteria) |
| DSTDEV | Estimates the standard deviation based on a sample of selected database entries | DSTDEV(database, field, criteria) |
| DSTDEVP | Calculates the standard deviation based on the entire population of selected database entries | DSTDEVP(database, field, criteria) |
| DSUM | Adds the numbers in the field column of records in the database that match the criteria | DSUM(database, field, criteria) |
| DVAR | Estimates variance based on a sample from selected database entries | DVAR(database, field, criteria) |
| DVARP | Calculates variance based on the entire population of selected database entries | DVARP(database, field, criteria) |

## Date and Time Functions

| DATE | Returns the serial number of a particular date | Syntax |
|---|---|---|
| DATEDIF | Calculates the number of days, months, or years between two dates. This function is useful in formulas where you need to calculate an age. | DATE(year,month,day) |
| DATEVALUE | Converts a date in the form of text to a serial number | DATEDIF(start_date,end_date,unit) |
| DAY | Converts a serial number to a day of the month | DATEVALUE(date_text) |
| DAYS (2013) | Returns the number of days between two dates | DAYS(end_date, start_date) |
| DAYS360 | Calculates the number of days between two dates based on a 360-day year | DAYS360(start_date,end_date,[method]) |
| EDATE | Returns the serial number of the date that is the indicated number of months before or after the start date | EDATE(start_date, months) |
| EOMONTH | Returns the serial number of the last day of the month before or after a specified number of months | EOMONTH(start_date, months) |
| HOUR | Converts a serial number to an hour | HOUR(serial_number) |
| ISOWEEKNUM (2013) | Returns the number of the ISO week number of the year for a given date | ISOWEEKNUM(date) |
| MINUTE | Converts a serial number to a minute | MINUTE(serial_number) |
| MONTH | Converts a serial number to a month | MONTH(serial_number) |
| NETWORKDAYS | Returns the number of whole workdays between two dates | NETWORKDAYS(start_date, end_date, [holidays]) |
| NETWORKDAYS.INTL (2010) | Returns the number of whole workdays between two dates using parameters to indicate which and how many days are weekend days | NETWORKDAYS.INTL(start_date, end_date, [weekend], [holidays]) |
| NOW | Returns the serial number of the current date and time | NOW() |
| SECOND | Converts a serial number to a second | SECOND(serial_number) |
| TIME | Returns the serial number of a particular time | TIME(hour, minute, second) |
| TIMEVALUE | Converts a time in the form of text to a serial number | TIMEVALUE(time_text) |
| TODAY | Returns the serial number of today's date | TODAY() |
| WEEKDAY | Converts a serial number to a day of the week | WEEKDAY(serial_number,[return_type]) |
| WEEKNUM | Converts a serial number to a number representing where the week falls numerically with a year | WEEKNUM(serial_number,[return_type]) |
| WORKDAY | Returns the serial number of the date before or after a specified number of workdays | WORKDAY(start_date, days, [holidays]) |

| | | |
|---|---|---|
| WORKDAY.INTL (2010) | Returns the serial number of the date before or after a specified number of workdays using parameters to indicate which and how many days are weekend days | WORKDAY.INTL(start_date, days, [weekend], [holidays]) |
| YEAR | Converts a serial number to a year | YEAR(serial_number) |
| YEARFRAC | Returns the year fraction representing the number of whole days between start_date and end_date | YEARFRAC(start_date, end_date, [basis]) |

## Engineering Functions

| Function | Description | Syntax |
|---|---|---|
| BESSELI | Returns the modified Bessel function In(x) | BESSELI(X, N) |
| BESSELJ | Returns the Bessel function Jn(x) | BESSELJ(X, N) |
| BESSELK | Returns the modified Bessel function Kn(x) | BESSELK(X, N) |
| BESSELY | Returns the Bessel function Yn(x) | BESSELY(X, N) |
| BIN2DEC | Converts a binary number to decimal | BIN2DEC(number) |
| BIN2HEX | Converts a binary number to hexadecimal | BIN2HEX(number, [places]) |
| BIN2OCT | Converts a binary number to octal | BIN2OCT(number, [places]) |
| BITAND (2013) | Returns a 'Bitwise And' of two numbers | BITAND( number1, number2) |
| BITLSHIFT (2013) | Returns a value number shifted left by shift_amount bits | BITLSHIFT(number, shift_amount) |
| BITOR (2013) | Returns a bitwise OR of 2 numbers | BITOR(number1, number2) |
| BITRSHIFT (2013) | Returns a value number shifted right by shift_amount bits | BITRSHIFT(number, shift_amount) |
| BITXOR (2013) | Returns a bitwise 'Exclusive Or' of two numbers | BITXOR(number1, number2) |
| COMPLEX | Converts real and imaginary coefficients into a complex number | COMPLEX(real_num, i_num, [suffix]) |
| CONVERT | Converts a number from one measurement system to another | CONVERT(number,from_unit,to_unit) |
| DEC2BIN | Converts a decimal number to binary | DEC2BIN(number, [places]) |
| DEC2HEX | Converts a decimal number to hexadecimal | DEC2HEX(number, [places]) |
| DEC2OCT | Converts a decimal number to octal | DEC2OCT(number, [places]) |
| DELTA | Tests whether two values are equal | DELTA(number1, [number2]) |
| ERF | Returns the error function | ERF(lower_limit,[upper_limit]) |
| ERF.PRECISE (2010) | Returns the error function | ERF.PRECISE(x) |
| ERFC | Returns the complementary error function | ERFC(x) |
| ERFC.PRECISE (2010) | Returns the complementary ERF function integrated between x and infinity | ERFC.PRECISE(x) |
| GESTEP | Tests whether a number is greater than a threshold value | GESTEP(number, [step]) |
| HEX2BIN | Converts a hexadecimal number to binary | HEX2BIN(number, [places]) |
| HEX2DEC | Converts a hexadecimal number to decimal | HEX2DEC(number) |
| HEX2OCT | Converts a hexadecimal number to octal | HEX2OCT(number, [places]) |
| IMABS | Returns the absolute value (modulus) of a complex number | IMABS(inumber) |
| IMAGINARY | Returns the imaginary coefficient of a complex number | IMAGINARY(inumber) |
| IMARGUMENT | Returns the argument theta, an angle expressed in radians | IMARGUMENT(inumber) |
| IMCONJUGATE | Returns the complex conjugate of a complex number | IMCONJUGATE(inumber) |
| IMCOS | Returns the cosine of a complex number | IMCOS(inumber) |
| IMCOSH (2013) | Returns the hyperbolic cosine of a complex number | IMCOSH(inumber) |
| IMCOT (2013) | Returns the cotangent of a complex number | IMCOT(inumber) |
| IMCSC (2013) | Returns the cosecant of a complex number | IMCSC(inumber) |
| IMCSCH (2013) | Returns the hyperbolic cosecant of a complex number | IMCSCH(inumber) |
| IMDIV | Returns the quotient of two complex numbers | IMDIV(inumber1, inumber2) |
| IMEXP | Returns the exponential of a complex number | IMEXP(inumber) |
| IMLN | Returns the natural logarithm of a complex number | IMLN(inumber) |

| | | |
|---|---|---|
| IMLOG10 | Returns the base-10 logarithm of a complex number | IMLOG10(inumber) |
| IMLOG2 | Returns the base-2 logarithm of a complex number | IMLOG2(inumber) |
| IMPOWER | Returns a complex number raised to an integer power | IMLOG2(inumber) |
| IMPRODUCT | Returns the product of from 2 to 255 complex numbers | IMPOWER(inumber, number) |
| IMREAL | Returns the real coefficient of a complex number | IMREAL(inumber) |
| IMSEC (2013) | Returns the secant of a complex number | IMSEC(inumber) |
| IMSECH (2013) | Returns the hyperbolic secant of a complex number | IMSECH(inumber) |
| IMSIN | Returns the sine of a complex number | IMSIN(inumber) |
| IMSINH (2013) | Returns the hyperbolic sine of a complex number | IMSINH(inumber) |
| IMSQRT | Returns the square root of a complex number | IMSQRT(inumber) |
| IMSUB | Returns the difference between two complex numbers | IMSUB(inumber1, inumber2) |
| IMSUM | Returns the sum of complex numbers | IMSUM(inumber1, [inumber2], ...) |
| IMTAN (2013) | Returns the tangent of a complex number | IMTAN(inumber) |
| OCT2BIN | Converts an octal number to binary | OCT2BIN(number, [places]) |
| OCT2DEC | Converts an octal number to decimal | OCT2DEC(number) |
| OCT2HEX | Converts an octal number to hexadecimal | OCT2HEX(number, [places]) |

## Financial functions

| Function | Description | Syntax |
|---|---|---|
| ACCRINT | Returns the accrued interest for a security that pays periodic interest | ACCRINT(issue, first_interest, settlement, rate, par, frequency, [basis], [calc_method]) |
| ACCRINTM | Returns the accrued interest for a security that pays interest at maturity | ACCRINTM(issue, settlement, rate, par, [basis]) |
| AMORDEGRC | Returns the depreciation for each accounting period by using a depreciation coefficient | AMORDEGRC(cost, date_purchased, first_period, salvage, period, rate, [basis]) |
| AMORLINC | Returns the depreciation for each accounting period | AMORLINC(cost, date_purchased, first_period, salvage, period, rate, [basis]) |
| COUPDAYBS | Returns the number of days from the beginning of the coupon period to the settlement date | COUPDAYBS(settlement, maturity, frequency, [basis]) |
| COUPDAYS | Returns the number of days in the coupon period that contains the settlement date | COUPDAYS(settlement, maturity, frequency, [basis]) |
| COUPDAYSNC | Returns the number of days from the settlement date to the next coupon date | COUPDAYSNC(settlement, maturity, frequency, [basis]) |
| COUPNCD | Returns the next coupon date after the settlement date | COUPNCD(settlement, maturity, frequency, [basis]) |
| COUPNUM | Returns the number of coupons payable between the settlement date and maturity date | COUPNUM(settlement, maturity, frequency, [basis]) |
| COUPPCD | Returns the previous coupon date before the settlement date | COUPPCD(settlement, maturity, frequency, [basis]) |
| CUMIPMT | Returns the cumulative interest paid between two periods | CUMIPMT(rate, nper, pv, start_period, end_period, type) |
| CUMPRINC | Returns the cumulative principal paid on a loan between two periods | CUMPRINC(rate, nper, pv, start_period, end_period, type) |
| DB | Returns the depreciation of an asset for a specified period by using the fixed-declining balance method | DB(cost, salvage, life, period, [month]) |
| DDB | Returns the depreciation of an asset for a specified period by using the double-declining balance method or some other method that you specify | DDB(cost, salvage, life, period, [factor]) |
| DISC | Returns the discount rate for a security | DISC(settlement, maturity, pr, redemption, [basis]) |
| DOLLARDE | Converts a dollar price, expressed as a fraction, into a dollar price, expressed as a decimal number | DOLLARDE(fractional_dollar, fraction) |

# Keyboard shortcuts and Functions in Microsoft Excel

| | | |
|---|---|---|
| DOLLARFR | Converts a dollar price, expressed as a decimal number, into a dollar price, expressed as a fraction | DOLLARFR(decimal_dollar, fraction) |
| DURATION | Returns the annual duration of a security with periodic interest payments | DURATION(settlement, maturity, coupon, yld, frequency, [basis]) |
| EFFECT | Returns the effective annual interest rate | EFFECT(nominal_rate, npery) |
| FV | Returns the future value of an investment | FV(rate,nper,pmt,[pv],[type]) |
| FVSCHEDULE | Returns the future value of an initial principal after applying a series of compound interest rates | FVSCHEDULE(principal, schedule) |
| INTRATE | Returns the interest rate for a fully invested security | INTRATE(settlement, maturity, investment, redemption, [basis]) |
| IPMT | Returns the interest payment for an investment for a given period | IPMT(rate, per, nper, pv, [fv], [type]) |
| IRR | Returns the internal rate of return for a series of cash flows | IRR(values, [guess]) |
| ISPMT | Calculates the interest paid during a specific period of an investment | ISPMT(rate, per, nper, pv) |
| MDURATION | Returns the Macauley modified duration for a security with an assumed par value of $100 | MDURATION(settlement, maturity, coupon, yld, frequency, [basis]) |
| MIRR | Returns the internal rate of return where positive and negative cash flows are financed at different rates | MIRR(values, finance_rate, reinvest_rate) |
| NOMINAL | Returns the annual nominal interest rate | =NOMINAL(effect_rate,npery) |
| NPER | Returns the number of periods for an investment | =NPER(rate, pmt, pv, [fv], [type]) |
| NPV | Returns the net present value of an investment based on a series of periodic cash flows and a discount rate | =NPV(rate, value1, [value2], ...) |
| ODDFPRICE | Returns the price per $100 face value of a security with an odd first period | =ODDFPRICE(settlement, maturity, issue, first_coupon, rate, yld, redemption, frequency, [basis]) |
| ODDFYIELD | Returns the yield of a security with an odd first period | =ODDFYIELD(settlement, maturity, issue, first_coupon, rate, pr, redemption, frequency, [basis]) |
| ODDLPRICE | Returns the price per $100 face value of a security with an odd last period | =ODDLPRICE(settlement, maturity, last_interest, rate, yld, redemption, [basis]) |
| ODDLYIELD | Returns the yield of a security with an odd last period | =ODDLYIELD(settlement, maturity, last_interest, rate, pr, redemption, [basis]) |
| PDURATION (2013) | Returns the number of periods required by an investment to reach a specified value | =PDURATION(rate, pv, fv) |
| PMT | Returns the periodic payment for an annuity | =PMT(rate, nper, pv, [fv], [type]) |
| PPMT | Returns the payment on the principal for an investment for a given period | =PPMT(rate, per, nper, pv, [fv], [type]) |
| PRICE | Returns the price per $100 face value of a security that pays periodic interest | =PRICE(settlement, maturity, rate, yld, redemption, frequency, [basis]) |
| PRICEDISC | Returns the price per $100 face value of a discounted security | =PRICEDISC(settlement, maturity, discount, redemption, [basis]) |
| PRICEMAT | Returns the price per $100 face value of a security that pays interest at maturity | =PRICEMAT(settlement, maturity, issue, rate, yld, [basis]) |
| PV | Returns the present value of an investment | =PV(rate, nper, pmt, [fv], [type]) |
| RATE | Returns the interest rate per period of an annuity | =RATE(nper, pmt, pv, [fv], [type], [guess]) |
| RECEIVED | Returns the amount received at maturity for a fully invested security | =RECEIVED(settlement, maturity, investment, discount, [basis]) |
| RRI (2013) | Returns an equivalent interest rate for the growth of an investment | =RRI(nper, pv, fv) |
| SLN | Returns the straight-line depreciation of an asset for one period | =SLN(cost, salvage, life) |
| SYD | Returns the sum-of-years' digits depreciation of an asset for a specified period | =SYD(cost, salvage, life, period) |
| TBILLEQ | Returns the bond-equivalent yield for a Treasury bill | =TBILLEQ(settlement, maturity, discount) |
| TBILLPRICE | Returns the price per $100 face value for a Treasury bill | =TBILLPRICE(settlement, maturity, discount) |
| TBILLYIELD | Returns the yield for a Treasury bill | =TBILLYIELD(settlement, maturity, pr) |
| VDB | Returns the depreciation of an asset for a specified or partial period by using a declining balance method | = VDB(cost, salvage, life, start_period, end_period, [factor], [no_switch]) |

| | | |
|---|---|---|
| XIRR | Returns the internal rate of return for a schedule of cash flows that is not necessarily periodic | =XIRR(values, dates, [guess]) |
| XNPV | Returns the net present value for a schedule of cash flows that is not necessarily periodic | =XNPV(rate, values, dates) |
| YIELD | Returns the yield on a security that pays periodic interest | =YIELD(settlement, maturity, rate, pr, redemption, frequency, [basis]) |
| YIELDDISC | Returns the annual yield for a discounted security; for example, a Treasury bill | =YIELDDISC(settlement, maturity, pr, redemption, [basis]) |
| YIELDMAT | Returns the annual yield of a security that pays interest at maturity | =YIELDMAT(settlement, maturity, issue, rate, pr, [basis]) |

## Information Functions

| Function | Description | Syntax |
|---|---|---|
| CELL | Returns information about the formatting, location, or contents of a cell | =CELL(info_type, [reference]) |
| ERROR.TYPE | Returns a number corresponding to an error type | =ERROR.TYPE(error_val) |
| INFO | Returns information about the current operating environment<br>Note: This function is not available in Excel for the web. | =INFO(type_text) |
| ISBLANK | Returns TRUE if the value is blank | =ISBLANK(value) |
| ISERR | Returns TRUE if the value is any error value except #N/A | =ISERR(value) |
| ISERROR | Returns TRUE if the value is any error value | =ISERROR(value) |
| ISEVEN | Returns TRUE if the number is even | =ISEVEN(number) |
| ISFORMULA (2013) | Returns TRUE if there is a reference to a cell that contains a formula | =ISFORMULA(reference) |
| ISLOGICAL | Returns TRUE if the value is a logical value | =ISLOGICAL(value) |
| ISNA | Returns TRUE if the value is the #N/A error value | =ISNA(value) |
| ISNONTEXT | Returns TRUE if the value is not text | =ISNONTEXT(value) |
| ISNUMBER | Returns TRUE if the value is a number | =ISNUMBER(value) |
| ISODD | Returns TRUE if the number is odd | =ISODD(number) |
| ISOMITTED (2024) | Checks whether the value in a LAMBDA is missing and returns TRUE or FALSE | =ISOMITTED(value) |
| ISREF | Returns TRUE if the value is a reference | =ISREF(value) |
| ISTEXT | Returns TRUE if the value is text | =ISTEXT(value) |
| N | Returns a value converted to a number | =N(value) |
| NA | Returns the error value #N/A | =NA() |
| SHEET (2013) | Returns the sheet number of the referenced sheet | =SHEET([reference]) |
| SHEETS (2013) | Returns the number of sheets in a reference | =SHEETS([reference]) |
| STOCKHISTORY (Microsoft 365) | Retrieves historical data about a financial instrument | =STOCKHISTORY(stock, start_date, [end_date], [interval], [headers], [property0], [property1], [property2], [property3], [property4], [property5]) |
| TYPE | Returns a number indicating the data type of a value | =TYPE(value) |

## Logical Functions

| Function | Description | Syntax |
|---|---|---|

# Keyboard shortcuts and Functions in Microsoft Excel

| | | |
|---|---|---|
| AND | Returns TRUE if all of its arguments are TRUE | =AND(logical1, [logical2], ...) |
| BYCOL function (2024) | Applies a LAMBDA to each column and returns an array of the results | `=BYCOL(array, lambda(column)` |
| BYROW (2024) | Applies a LAMBDA to each row and returns an array of the results | =BYROW(array, lambda(row)) |
| FALSE | Returns the logical value FALSE | =FALSE() |
| IF | Specifies a logical test to perform | =IF(logical_test, value_if_true, [value_if_false]) |
| IFERROR | Returns a value you specify if a formula evaluates to an error; otherwise, returns the result of the formula | =IFERROR(value, value_if_error) |
| IFNA (2013) | Returns the value you specify if the expression resolves to #N/A, otherwise returns the result of the expression | =IFNA(value, value_if_na) |
| IFS (2019) | Checks whether one or more conditions are met and returns a value that corresponds to the first TRUE condition. | =IFS(logical_test1, value_if_true1, [logical_test2, value_if_true2], ...) |
| LAMBDA (2024) | Create custom, reusable functions and call them by a friendly name | =LAMBDA([parameter1, parameter2, ...], calculation) |
| LET (2021) | Assigns names to calculation results | =LET(name1, name_value1, calculation_or_name2, [name_value2, calculation_or_name3...]) |
| MAKEARRAY (2024) | Returns a calculated array of a specified row and column size, by applying a LAMBDA | =MAKEARRAY(rows, cols, lambda(row, col)) |
| MAP (2024) | Returns an array formed by mapping each value in the array(s) to a new value by applying a LAMBDA to create a new value | =MAP(array1, [array2, ...], lambda(...)) |
| NOT | Reverses the logic of its argument | =NOT(logical) |
| OR | Returns TRUE if any argument is TRUE | =OR(logical1, [logical2], ...) |
| REDUCE (2024) | Reduces an array to an accumulated value by applying a LAMBDA to each value and returning the total value in the accumulator | =REDUCE(initialValue, array, lambda(accumulator, value)) |
| SCAN (2024) | Scans an array by applying a LAMBDA to each value and returns an array that has each intermediate value | =SCAN(initialValue, array, lambda(accumulator, value)) |
| SWITCH (2016) | Evaluates an expression against a list of values and returns the result corresponding to the first matching value. If there is no match, an optional default value may be returned. | =SWITCH(expression, value1, result1, [value2, result2], ..., [default]) |
| TRUE | Returns the logical value TRUE | =TRUE() |
| XOR (2013) | Returns a logical exclusive OR of all arguments | =XOR(logical1, [logical2], ...) |

## Lookup and reference functions

| Function | Description | Syntax |
|---|---|---|
| ADDRESS | Returns a reference as text to a single cell in a worksheet | =ADDRESS(row_num, column_num, [abs_num], [a1], [sheet_text]) |
| AREAS | Returns the number of areas in a reference | =AREAS(reference) |
| CHOOSE | Chooses a value from a list of values | =CHOOSE(index_num, value1, [value2], ...) |
| CHOOSECOLS (2024) | Returns the specified columns from an array | =CHOOSECOLS(array, col_num1, [col_num2], ...) |
| CHOOSEROWS (2024) | Returns the specified rows from an array | =CHOOSEROWS(array, row_num1, [row_num2], ...) |
| COLUMN | Returns the column number of a reference | =COLUMN([reference]) |
| COLUMNS | Returns the number of columns in a reference | =COLUMNS(array) |
| DROP (2024) | Excludes a specified number of rows or columns from the start or end of an array | =DROP(array, rows, [columns]) |
| EXPAND (2024) | Expands or pads an array to specified row and column dimensions | =EXPAND(array, rows, [columns], [pad_with]) |
| FILTER (2021) | Filters a range of data based on criteria you define | =FILTER(array, include, [if_empty]) |
| FORMULATEXT (2013) | Returns the formula at the given reference as text | =FORMULATEXT(reference) |

# Keyboard shortcuts and Functions in Microsoft Excel

| | | |
|---|---|---|
| GETPIVOTDATA | Returns data stored in a PivotTable report | =GETPIVOTDATA(data_field, pivot_table, [field1, item1], ...) |
| GROUPBY (Microsoft 365) | Helps a user group, aggregate, sort, and filter data based on the fields you specify | =GROUPBY(array, group_by_array, function, [additional_group_by], ...) |
| HLOOKUP | Looks in the top row of an array and returns the value of the indicated cell | =HLOOKUP(lookup_value, table_array, row_index_num, [range_lookup]) |
| HSTACK (2024) | Appends arrays horizontally and in sequence to return a larger array | =HSTACK(array1, [array2], ...) |
| HYPERLINK | Creates a shortcut or jump that opens a document stored on a network server, an intranet, or the Internet | =HYPERLINK(link_location, [friendly_name]) |
| IMAGE (2024) | Returns an image from a given source | =IMAGE(source, [alt_text], [sizing], [height], [width]) |
| INDEX | Uses an index to choose a value from a reference or array | =INDEX(array, row_num, [column_num]) |
| INDIRECT | Returns a reference indicated by a text value | =INDEX(reference, row_num, [column_num], [area_num]) |
| LOOKUP | Looks up values in a vector or array | =INDIRECT(ref_text, [a1]) |
| MATCH | Looks up values in a reference or array | =LOOKUP(lookup_value, lookup_vector, [result_vector]) |
| OFFSET | Returns a reference offset from a given reference | =MATCH(lookup_value, lookup_array, [match_type]) |
| PIVOTBY (Microsoft 365) | Helps a user group, aggregate, sort, and filter data based on the row and column fields that you specify | =OFFSET(reference, rows, cols, [height], [width]) |
| ROW | Returns the row number of a reference | =PIVOTBY(array, row_fields, column_fields, values, function) |
| ROWS | Returns the number of rows in a reference | =ROW([reference]) |
| RTD | Retrieves real-time data from a program that supports COM automation | =ROWS(array) |
| SORT (2021) | Sorts the contents of a range or array | =RTD(progID, server, topic1, [topic2], ...) |
| SORTBY (2021) | Sorts the contents of a range or array based on the values in a corresponding range or array | =SORT(array, [sort_index], [sort_order], [by_col]) |
| TAKE (2024) | Returns a specified number of contiguous rows or columns from the start or end of an array | =SORTBY(array, by_array1, sort_order1, [by_array2, sort_order2], ...) |
| TOCOL (2024) | Returns the array in a single column | =TAKE(array, rows, [columns]) |
| TOROW (2024) | Returns the array in a single row | =TOCOL(array, [ignore], [scan_by_column]) |
| TRANSPOSE | Returns the transpose of an array | =TOROW(array, [ignore], [scan_by_column]) |
| TRIMRANGE (Microsoft 365) | Scans in from the edges of a range or array until it finds a non-blank cell (or value), it then excludes those blank rows or columns | =TRANSPOSE(array) |
| UNIQUE (2021) | Returns a list of unique values in a list or range | =TRIMRANGE(array) |
| VLOOKUP | Looks in the first column of an array and moves across the row to return the value of a cell | =UNIQUE(array, [by_col], [exactly_once]) |
| VSTACK (2024) | Appends arrays vertically and in sequence to return a larger array | =VLOOKUP(lookup_value, table_array, col_index_num, [range_lookup]) |
| WRAPCOLS (2024) | Wraps the provided row or column of values by columns after a specified number of elements | =VSTACK(array1, [array2], ...) |
| WRAPROWS (2024) | Wraps the provided row or column of values by rows after a specified number of elements | =WRAPCOLS(array, wrap_count, [pad_with]) |
| XLOOKUP (2021) | Searches a range or an array, and returns an item corresponding to the first match it finds. If a match doesn't exist, then XLOOKUP can return the closest (approximate) match. | =WRAPROWS(array, wrap_count, [pad_with]) |

| | | |
|---|---|---|
| XMATCH (2021) | Returns the relative position of an item in an array or range of cells. | =XLOOKUP(lookup_value, lookup_array, return_array, [if_not_found], [match_mode], [search_mode]) |

### Math and Trigonometry functions

| Function | Description | Syntax |
|---|---|---|
| ABS | Returns the absolute value of a number | =ABS(number) |
| ACOS | Returns the arccosine of a number | =ACOS(number) |
| ACOSH | Returns the inverse hyperbolic cosine of a number | =ACOSH(number) |
| ACOT (2013) | Returns the arccotangent of a number | =ACOT(number) |
| ACOTH (2013) | Returns the hyperbolic arccotangent of a number | =ACOTH(number) |
| AGGREGATE | Returns an aggregate in a list or database | =AGGREGATE(function_num, options, array, [k]) |
| ARABIC | Converts a Roman number to Arabic, as a number | =ARABIC(text) |
| ASIN | Returns the arcsine of a number | =ASIN(number) |
| ASINH | Returns the inverse hyperbolic sine of a number | =ASINH(number) |
| ATAN | Returns the arctangent of a number | =ATAN(number) |
| ATAN2 | Returns the arctangent from x- and y-coordinates | =ATAN2(x_num, y_num) |
| ATANH | Returns the inverse hyperbolic tangent of a number | =ATANH(number) |
| BASE (2013) | Converts a number into a text representation with the given radix (base) | =BASE(number, radix, [min_length]) |
| CEILING | Rounds a number to the nearest integer or to the nearest multiple of significance | =CEILING(number, significance) |
| CEILING.MATH (2013) | Rounds a number up, to the nearest integer or to the nearest multiple of significance | =CEILING.MATH(number, [significance], [mode]) |
| CEILING.PRECISE | Rounds a number the nearest integer or to the nearest multiple of significance. Regardless of the sign of the number, the number is rounded up. | =CEILING.PRECISE(number, [significance]) |
| COMBIN | Returns the number of combinations for a given number of objects | =COMBIN(number, number_chosen) |
| COMBINA (2013) | Returns the number of combinations with repetitions for a given number of items | =COMBINA(number, number_chosen) |
| COS | Returns the cosine of a number | =COS(number) |
| COSH | Returns the hyperbolic cosine of a number | =COSH(number) |
| COT (2013) | Returns the cotangent of an angle | =COT(number) |
| COTH (2013) | Returns the hyperbolic cotangent of a number | =COTH(number) |
| CSC (2013) | Returns the cosecant of an angle | =CSC(number) |
| CSCH (2013) | Returns the hyperbolic cosecant of an angle | =CSCH(number) |
| DECIMAL (2013) | Converts a text representation of a number in a given base into a decimal number | =DECIMAL(text, radix) |
| DEGREES | Converts radians to degrees | =DEGREES(angle) |
| EVEN | Rounds a number up to the nearest even integer | =EVEN(number) |
| EXP | Returns *e* raised to the power of a given number | =EXP(number) |
| FACT | Returns the factorial of a number | =FACT(number) |
| FACTDOUBLE | Returns the double factorial of a number | =FACTDOUBLE(number) |
| FLOOR | Rounds a number down, toward zero | =FLOOR(number, significance) |
| FLOOR.MATH (2013) | Rounds a number down, to the nearest integer or to the nearest multiple of significance | =FLOOR.MATH(number, [significance], [mode]) |

| | | |
|---|---|---|
| FLOOR.PRECISE | Rounds a number down to the nearest integer or to the nearest multiple of significance. Regardless of the sign of the number, the number is rounded down. | =FLOOR.PRECISE(number, [significance]) |
| GCD | Returns the greatest common divisor | =GCD(number1, [number2], ...) |
| INT | Rounds a number down to the nearest integer | =INT(number) |
| ISO.CEILING (2013) | Returns a number that is rounded up to the nearest integer or to the nearest multiple of significance | =ISO.CEILING(number, [significance]) |
| LCM | Returns the least common multiple | =LCM(number1, [number2], ...) |
| LET (2021) | Assigns names to calculation results to allow storing intermediate calculations, values, or defining names inside a formula | =LET(name1, value1, [name2, value2], ..., calculation) |
| LN | Returns the natural logarithm of a number | =LN(number) |
| LOG | Returns the logarithm of a number to a specified base | =LOG(number, [base]) |
| LOG10 | Returns the base-10 logarithm of a number | =LOG10(number) |
| MDETERM | Returns the matrix determinant of an array | =MDETERM(array) |
| MINVERSE | Returns the matrix inverse of an array | =MINVERSE(array) |
| MMULT | Returns the matrix product of two arrays | =MMULT(array1, array2) |
| MOD | Returns the remainder from division | =MOD(number, divisor) |
| MROUND | Returns a number rounded to the desired multiple | =MROUND(number, multiple) |
| MULTINOMIAL | Returns the multinomial of a set of numbers | =MULTINOMIAL(number1, [number2], ...) |
| MUNIT (2013) | Returns the unit matrix or the specified dimension | =MUNIT(dimension) |
| ODD | Rounds a number up to the nearest odd integer | =ODD(number) |
| PERCENTOF (Microsoft 365) | Sums the values in the subset and divides it by all the values | =PERCENTOF(array, subset) |
| PI | Returns the value of pi | =PI() |
| POWER | Returns the result of a number raised to a power | =POWER(number, power) |
| PRODUCT | Multiplies its arguments | =PRODUCT(number1, [number2], ...) |
| QUOTIENT | Returns the integer portion of a division | =QUOTIENT(numerator, denominator) |
| RADIANS | Converts degrees to radians | =RADIANS(angle) |
| RAND | Returns a random number between 0 and 1 | =RAND() |
| RANDARRA (2021) | Returns an array of random numbers between 0 and 1. However, you can specify the number of rows and columns to fill, minimum and maximum values, and whether to return whole numbers or decimal values. | =RANDARRAY([rows], [columns], [min], [max], [integer]) |
| RANDBETWEEN | Returns a random number between the numbers you specify | =RANDBETWEEN(bottom, top) |
| ROMAN | Converts an Arabic numeral to Roman, as text | =ROMAN(number, [form]) |
| ROUND | Rounds a number to a specified number of digits | =ROUND(number, num_digits) |
| ROUNDDOWN | Rounds a number down, toward zero | =ROUNDDOWN(number, num_digits) |
| ROUNDUP | Rounds a number up, away from zero | =ROUNDUP(number, num_digits) |
| SEC (2013) | Returns the secant of an angle | =SEC(number) |
| SECH (2013) | Returns the hyperbolic secant of an angle | =SECH(number) |
| SERIESSUM | Returns the sum of a power series based on the formula | =SERIESSUM(x, n, m, coefficients) |
| SEQUENCE(2021) | Generates a list of sequential numbers in an array, such as 1, 2, 3, 4 | =SEQUENCE(rows, [columns], [start], [step]) |
| SIGN | Returns the sign of a number | =SIGN(number) |
| SIN | Returns the sine of the given angle | =SIN(number) |

| | | |
|---|---|---|
| SINH | Returns the hyperbolic sine of a number | =SINH(number) |
| SQRT | Returns a positive square root | =SQRT(number) |
| SQRTPI | Returns the square root of (number * pi) | =SQRTPI(number) |
| SUBTOTAL | Returns a subtotal in a list or database | =SUBTOTAL(function_num, ref1, [ref2], ...) |
| SUM | Adds its arguments | =SUM(number1, [number2], ...) |
| SUMIF | Adds the cells specified by a given criteria | =SUMIF(range, criteria, [sum_range]) |
| SUMIFS (2019) | Adds the cells in a range that meet multiple criteria | =SUMIFS(sum_range, criteria_range1, criteria1, [criteria_range2, criteria2], ...) |
| SUMPRODUCT | Returns the sum of the products of corresponding array components | =SUMPRODUCT(array1, [array2], ...) |
| SUMSQ | Returns the sum of the squares of the arguments | =SUMSQ(number1, [number2], ...) |
| SUMX2MY2 | Returns the sum of the difference of squares of corresponding values in two arrays | =SUMX2MY2(array_x, array_y) |
| SUMX2PY2 | Returns the sum of the sum of squares of corresponding values in two arrays | =SUMX2PY2(array_x, array_y) |
| SUMXMY2 | Returns the sum of squares of differences of corresponding values in two arrays | =SUMXMY2(array_x, array_y) |
| TAN | Returns the tangent of a number | =TAN(number) |
| TANH | Returns the hyperbolic tangent of a number | =TANH(number) |
| TRUNC | Truncates a number to an integer | =TRUNC(number, [num_digits]) |

## Statistical Functions

| Function | Description | Syntax |
|---|---|---|
| AVEDEV | Returns the average of the absolute deviations of data points from their mean | =AVEDEV(number1, [number2], ...) |
| AVERAGE | Returns the average of its arguments | =AVERAGE(number1, [number2], ...) |
| AVERAGEA | Returns the average of its arguments, including numbers, text, and logical values | =AVERAGEA(value1, [value2], ...) |
| AVERAGEIF | Returns the average (arithmetic mean) of all the cells in a range that meet a given criteria | =AVERAGEIF(range, criteria, [average_range]) |
| AVERAGEIFS (2019) | Returns the average (arithmetic mean) of all cells that meet multiple criteria | =AVERAGEIFS(average_range, criteria_range1, criteria1, [criteria_range2, criteria2], ...) |
| BETA.DIST (2010) | Returns the beta cumulative distribution function | =BETA.DIST(x, alpha, beta, cumulative, [A], [B]) |
| BETA.INV (2010) | Returns the inverse of the cumulative distribution function for a specified beta distribution | =BETA.INV(probability, alpha, beta, [A], [B]) |
| BINOM.DIST (2010) | Returns the individual term binomial distribution probability | =BINOM.DIST(number_s, trials, probability_s, cumulative) |
| BINOM.DIST.RANGE (2013) | Returns the probability of a trial result using a binomial distribution | =BINOM.DIST.RANGE(trials, probability_s, number_s, [number_s2]) |
| BINOM.INV (2010) | Returns the smallest value for which the cumulative binomial distribution is less than or equal to a criterion value | =BINOM.INV(trials, probability_s, alpha) |
| CHISQ.DIST (2010) | Returns the cumulative beta probability density function | =CHISQ.DIST(x, deg_freedom, cumulative) |
| CHISQ.DIST.RT (2010) | Returns the one-tailed probability of the chi-squared distribution | =CHISQ.DIST.RT(x, deg_freedom) |
| CHISQ.INV (2010) | Returns the cumulative beta probability density function | =CHISQ.INV(probability, deg_freedom) |
| CHISQ.INV.RT (2010) | Returns the inverse of the one-tailed probability of the chi-squared distribution | =CHISQ.INV.RT(probability, deg_freedom) |
| CHISQ.TEST (2010) | Returns the test for independence | =CHISQ.TEST(actual_range, expected_range) |
| CONFIDENCE.NORM (2010) | Returns the confidence interval for a population mean | =CONFIDENCE.NORM(alpha, standard_dev, size) |
| CONFIDENCE.T (2010) | Returns the confidence interval for a population mean, using a Student's t distribution | =CONFIDENCE.T(alpha, standard_dev, size) |

# Keyboard shortcuts and Functions in Microsoft Excel

| | | |
|---|---|---|
| CORREL | Returns the correlation coefficient between two data sets | =CORREL(array1, array2) |
| COUNT | Counts how many numbers are in the list of arguments | =COUNT(value1, [value2], ...) |
| COUNTA | Counts how many values are in the list of arguments | =COUNTA(value1, [value2], ...) |
| COUNTBLANK | Counts the number of blank cells within a range | =COUNTBLANK(range) |
| COUNTIF | Counts the number of cells within a range that meet the given criteria | =COUNTIF(range, criteria) |
| COUNTIFS (2019) | Counts the number of cells within a range that meet multiple criteria | =COUNTIFS(criteria_range1, criteria1, [criteria_range2, criteria2], ...) |
| COVARIANCE.P (2010) | Returns covariance, the average of the products of paired deviations | =COVARIANCE.P(array1, array2) |
| COVARIANCE.S (2010) | Returns the sample covariance, the average of the products deviations for each data point pair in two data sets | =COVARIANCE.S(array1, array2) |
| DEVSQ | Returns the sum of squares of deviations | =DEVSQ(number1, [number2], ...) |
| EXPON.DIST (2010) | Returns the exponential distribution | =EXPON.DIST(x, lambda, cumulative) |
| F.DIST (2010) | Returns the F probability distribution | =F.DIST(x, deg_freedom1, deg_freedom2, cumulative) |
| F.DIST.RT (2010) | Returns the F probability distribution | =F.DIST.RT(x, deg_freedom1, deg_freedom2) |
| F.INV (2010) | Returns the inverse of the F probability distribution | =F.INV(probability, deg_freedom1, deg_freedom2) |
| F.INV.RT (2010) | Returns the inverse of the F probability distribution | =F.INV.RT(probability, deg_freedom1, deg_freedom2) |
| F.TEST (2010) | Returns the result of an F-test | =F.TEST(array1, array2) |
| FISHER | Returns the Fisher transformation | =FISHER(x) |
| FISHERINV | Returns the inverse of the Fisher transformation | =FISHERINV(y) |
| FORECAST | Returns a value along a linear trend<br>Note: In Excel 2016, this function is replaced with FORECAST.LINEAR as part of the new Forecasting functions, but it's still available for compatibility with earlier versions. | =FORECAST(x, known_y's, known_x's) |
| FORECAST.ETS (2016) | Returns a future value based on existing (historical) values by using the AAA version of the Exponential Smoothing (ETS) algorithm | =FORECAST.ETS(target_date, values, timeline, [seasonality], [data_completion], [aggregation]) |
| FORECAST.ETS.CONFINT (2016) | Returns a confidence interval for the forecast value at the specified target date | =FORECAST.ETS.CONFINT(target_date, values, timeline, [confidence_level], [seasonality], [data_completion], [aggregation]) |
| FORECAST.ETS.SEASONALITY (2016) | Returns the length of the repetitive pattern Excel detects for the specified time series | =FORECAST.ETS.SEASONALITY(values, timeline, [data_completion], [aggregation]) |
| FORECAST.ETS.STAT (2016) | Returns a statistical value as a result of time series forecasting | =FORECAST.ETS.STAT(values, timeline, statistic_type, [seasonality], [data_completion], [aggregation]) |
| FORECAST.LINEAR (2016) | Returns a future value based on existing values | =FORECAST.LINEAR(x, known_y's, known_x's) |
| FREQUENCY | Returns a frequency distribution as a vertical array | =FREQUENCY(data_array, bins_array) |
| GAMMA (2013) | Returns the Gamma function value | =GAMMA(x) |
| GAMMA.DIST (2010) | Returns the gamma distribution | =GAMMA.DIST(x, alpha, beta, cumulative) |
| GAMMA.INV (2010) | Returns the inverse of the gamma cumulative distribution | =GAMMA.INV(probability, alpha, beta) |
| GAMMALN | Returns the natural logarithm of the gamma function, Γ(x) | =GAMMALN(x) |
| GAMMALN.PRECISE (2010) | Returns the natural logarithm of the gamma function, Γ(x) | =GAMMALN.PRECISE(x) |
| GAUSS (2013) | Returns 0.5 less than the standard normal cumulative distribution | =GAUSS(z) |
| GEOMEAN | Returns the geometric mean | =GEOMEAN(number1, [number2], ...) |

| | | |
|---|---|---|
| GROWTH | Returns values along an exponential trend | =GROWTH(known_y's, [known_x's], [new_x's], [const]) |
| HARMEAN | Returns the harmonic mean | =HARMEAN(number1, [number2], ...) |
| HYPGEOM.DIST | Returns the hypergeometric distribution | =HYPGEOM.DIST(sample_s, number_sample, population_s, number_pop, cumulative) |
| INTERCEPT | Returns the intercept of the linear regression line | =INTERCEPT(known_y's, known_x's) |
| KURT | Returns the kurtosis of a data set | =KURT(number1, [number2], ...) |
| LARGE | Returns the k-th largest value in a data set | =LARGE(array, k) |
| LINEST | Returns the parameters of a linear trend | =LINEST(known_y's, [known_x's], [const], [stats]) |
| LOGEST | Returns the parameters of an exponential trend | =LOGEST(known_y's, [known_x's], [const], [stats]) |
| LOGNORM.DIST (2010) | Returns the cumulative lognormal distribution | =LOGNORM.DIST(x, mean, standard_dev, cumulative) |
| LOGNORM.INV (2010) | Returns the inverse of the lognormal cumulative distribution | =LOGNORM.INV(probability, mean, standard_dev) |
| MAX | Returns the maximum value in a list of arguments | =MAX(number1, [number2], ...) |
| MAXA | Returns the maximum value in a list of arguments, including numbers, text, and logical values | =MAXA(value1, [value2], ...) |
| MAXIFS (2019) | Returns the maximum value among cells specified by a given set of conditions or criteria | =MAXIFS(max_range, criteria_range1, criteria1, [criteria_range2, criteria2], ...) |
| MEDIAN | Returns the median of the given numbers | =MEDIAN(number1, [number2], ...) |
| MIN | Returns the minimum value in a list of arguments | =MIN(number1, [number2], ...) |
| MINA | Returns the smallest value in a list of arguments, including numbers, text, and logical values | =MINA(value1, [value2], ...) |
| MINIFS (2019) | Returns the minimum value among cells specified by a given set of conditions or criteria. | =MINIFS(min_range, criteria_range1, criteria1, [criteria_range2, criteria2], ...) |
| MODE.MULT (2010) | Returns a vertical array of the most frequently occurring, or repetitive values in an array or range of data | =MODE.MULT(number1, [number2], ...) |
| MODE.SNGL (2010) | Returns the most common value in a data set | =MODE.SNGL(number1, [number2], ...) |
| NEGBINOM.DIST (2010) | Returns the negative binomial distribution | =NEGBINOM.DIST(number_f, number_s, probability_s, cumulative) |
| NORM.DIST (2010) | Returns the normal cumulative distribution | =NORM.DIST(x, mean, standard_dev, cumulative) |
| NORM.INV (2010) | Returns the inverse of the normal cumulative distribution | =NORM.INV(probability, mean, standard_dev) |
| NORM.S.DIST (2010) | Returns the standard normal cumulative distribution | =NORM.S.DIST(z, cumulative) |
| NORM.S.INV (2010) | Returns the inverse of the standard normal cumulative distribution | =NORM.S.INV(probability) |
| PEARSON | Returns the Pearson product moment correlation coefficient | =PEARSON(array1, array2) |
| PERCENTILE.EXC (2010) | Returns the k-th percentile of values in a range, where k is in the range 0..1, exclusive | =PERCENTILE.EXC(array, k) |
| PERCENTILE.INC (2010) | Returns the k-th percentile of values in a range | =PERCENTILE.INC(array, k) |
| PERCENTRANK.EXC (2010) | Returns the rank of a value in a data set as a percentage (0..1, exclusive) of the data set | =PERCENTRANK.EXC(array, x, [significance]) |
| PERCENTRANK.INC (2010) | Returns the percentage rank of a value in a data set | =PERCENTRANK.INC(array, x, [significance]) |
| PERMUT | Returns the number of permutations for a given number of objects | =PERMUT(number, number_chosen) |
| PERMUTATIONA (2013) | Returns the number of permutations for a given number of objects (with repetitions) that can be selected from the total objects | =PERMUTATIONA(number, number_chosen) |
| PHI (2013) | Returns the value of the density function for a standard normal distribution | =PHI(x) |
| POISSON.DIST (2010) | Returns the Poisson distribution | =POISSON.DIST(x, mean, cumulative) |

| | | |
|---|---|---|
| PROB | Returns the probability that values in a range are between two limits | =PROB(x_range, prob_range, [lower_limit], [upper_limit]) |
| QUARTILE.EXC (2010) | Returns the quartile of the data set, based on percentile values from 0..1, exclusive | =QUARTILE.EXC(array, quart) |
| QUARTILE.INC (2010) | Returns the quartile of a data set | =QUARTILE.INC(array, quart) |
| RANK.AVG (2010) | Returns the rank of a number in a list of numbers | =RANK.AVG(number, ref, [order]) |
| RANK.EQ (2010) | Returns the rank of a number in a list of numbers | =RANK.EQ(number, ref, [order]) |
| RSQ | Returns the square of the Pearson product moment correlation coefficient | =RSQ(known_y's, known_x's) |
| SKEW | Returns the skewness of a distribution | =SKEW(number1, [number2], ...) |
| SKEW.P (2013) | Returns the skewness of a distribution based on a population: a characterization of the degree of asymmetry of a distribution around its mean | =SKEW.P(number1, [number2], ...) |
| SLOPE | Returns the slope of the linear regression line | =SLOPE(known_y's, known_x's) |
| SMALL | Returns the k-th smallest value in a data set | =SMALL(array, k) |
| STANDARDIZE | Returns a normalized value | =STANDARDIZE(x, mean, standard_dev) |
| STDEV.P (2010) | Calculates standard deviation based on the entire population | =STDEV.P(number1, [number2], ...) |
| STDEV.S (2010) | Estimates standard deviation based on a sample | =STDEV.S(number1, [number2], ...) |
| STDEVA | Estimates standard deviation based on a sample, including numbers, text, and logical values | =STDEVA(value1, [value2], ...) |
| STDEVPA | Calculates standard deviation based on the entire population, including numbers, text, and logical values | =STDEVPA(value1, [value2], ...) |
| STEYX | Returns the standard error of the predicted y-value for each x in the regression | =STEYX(known_y's, known_x's) |
| T.DIST (2010) | Returns the Percentage Points (probability) for the Student t-distribution | =T.DIST(x, deg_freedom, cumulative) |
| T.DIST.2T (2010) | Returns the Percentage Points (probability) for the Student t-distribution | =T.DIST.2T(x, deg_freedom) |
| T.DIST.RT (2010) | Returns the Student's t-distribution | =T.DIST.RT(x, deg_freedom) |
| T.INV (2010) | Returns the t-value of the Student's t-distribution as a function of the probability and the degrees of freedom | =T.INV(probability, deg_freedom) |
| T.INV.2T (2010) | Returns the inverse of the Student's t-distribution | =T.INV.2T(probability, deg_freedom) |
| T.TEST (2010) | Returns the probability associated with a Student's t-test | =T.TEST(array1, array2, tails, type) |
| TREND | Returns values along a linear trend | =TREND(known_y's, [known_x's], [new_x's], [const]) |
| TRIMMEAN | Returns the mean of the interior of a data set | =TRIMMEAN(array, percent) |
| VAR.P (2010) | Calculates variance based on the entire population | =VAR.P(number1, [number2], ...) |
| VAR.S (2010) | Estimates variance based on a sample | =VAR.S(number1, [number2], ...) |
| VARA | Estimates variance based on a sample, including numbers, text, and logical values | =VARA(value1, [value2], ...) |
| VARPA | Calculates variance based on the entire population, including numbers, text, and logical values | =VARPA(value1, [value2], ...) |
| WEIBULL.DIST (2010) | Returns the Weibull distribution | =WEIBULL.DIST(x, alpha, beta, cumulative) |
| Z.TEST (2010) | Returns the one-tailed probability-value of a z-test | =Z.TEST(array, x, [sigma]) |

## Text Functions

| Function | Description | Syntax |
|---|---|---|

# Keyboard shortcuts and Functions in Microsoft Excel

| | | |
|---|---|---|
| ASC | Changes full-width (double-byte) English letters or katakana within a character string to half-width (single-byte) characters | ASC(text) |
| ARRAYTOTEXT (2021) | Returns an array of text values from any specified range | ARRAYTOTEXT(array, [format]) |
| BAHTTEXT | Converts a number to text, using the ß (baht) currency format | BAHTTEXT(number) |
| CHAR | Returns the character specified by the code number | CHAR(number) |
| CLEAN | Removes all nonprintable characters from text | CLEAN(text) |
| CODE | Returns a numeric code for the first character in a text string | CODE(text) |
| CONCAT (2019) | Combines the text from multiple ranges and/or strings, but it doesn't provide the delimiter or IgnoreEmpty arguments. | CONCAT(text1, [text2], ...) |
| CONCATENATE | Joins several text items into one text item | CONCATENATE(text1, text2, ...) |
| DBCS (2013) | Changes half-width (single-byte) English letters or katakana within a character string to full-width (double-byte) characters | DBCS(text) |
| DETECTLANGUAGE (Microsoft 365) | Identifies the language of a specified text | DETECTLANGUAGE(text) |
| DOLLAR | Converts a number to text, using the $ (dollar) currency format | DOLLAR(number, [decimals]) |
| EXACT | Checks to see if two text values are identical | EXACT(text1, text2) |
| FIND, FINDB | Finds one text value within another (case-sensitive) | FIND(find_text, within_text, [start_num]) / FINDB(find_text, within_text, [start_num]) |
| FIXED | Formats a number as text with a fixed number of decimals | FIXED(number, [decimals], [no_commas]) |
| LEFT, LEFTB | Returns the leftmost characters from a text value | LEFT(text, [num_chars]) / LEFTB(text, [num_bytes]) |
| LEN, LENB | Returns the number of characters in a text string | LEN(text) / LENB(text) |
| LOWER | Converts text to lowercase | LOWER(text) |
| MID, MIDB | Returns a specific number of characters from a text string starting at the position you specify | MID(text, start_num, num_chars) / MIDB(text, start_num, num_bytes) |
| NUMBERVALUE (2013) | Converts text to number in a locale-independent manner | NUMBERVALUE(text, [decimal_separator], [group_separator]) |
| PHONETIC | Extracts the phonetic (furigana) characters from a text string | PHONETIC(reference) |
| PROPER | Capitalizes the first letter in each word of a text value | PROPER(text) |
| REGEXEXTRACT (Microsoft 365) | Extracts strings within the provided text that matches the pattern | REGEXEXTRACT(text, pattern) |
| REGEXREPLACE (Microsoft 365) | Replaces strings within the provided text that matches the pattern with replacement | REGEXREPLACE(text, pattern, replacement) |
| REGEXTEST (Microsoft 365) | Determines whether any part of text matches the pattern | REGEXTEST(text, pattern) |
| REPLACE, REPLACEB | Replaces characters within text | REPLACE(old_text, start_num, num_chars, new_text) / REPLACEB(old_text, start_byte, num_bytes, new_text) |
| REPT | Repeats text a given number of times | REPT(text, number_times) |
| RIGHT, RIGHTB | Returns the rightmost characters from a text value | RIGHT(text, [num_chars]) / RIGHTB(text, [num_bytes]) |
| SEARCH, SEARCHB | Finds one text value within another (not case-sensitive) | SEARCH(find_text, within_text, [start_num]) / SEARCHB(find_text, within_text, [start_num]) |
| SUBSTITUTE | Substitutes new text for old text in a text string | SUBSTITUTE(text, old_text, new_text, [instance_num]) |
| T | Converts its arguments to text | T(value) |
| TEXT | Formats a number and converts it to text | TEXT(value, format_text) |
| TEXTAFTER (2024) | Returns text that occurs after given character or string | TEXTAFTER(text, delimiter, [instance_num], [match_mode], [match_end], [if_not_found]) |
| TEXTBEFORE (2024) | Returns text that occurs before a given character or string | TEXTBEFORE(text, delimiter, [instance_num], [match_mode], [match_end], [if_not_found]) |
| TEXTJOIN (2019) | **Text:** Combines the text from multiple ranges and/or strings | TEXTJOIN(delimiter, ignore_empty, text1, [text2], ...) |
| TEXTSPLIT (2024) | Splits text strings by using column and row delimiters | TEXTSPLIT(text, column_delimiter, [row_delimiter], [ignore_empty], [match_mode], [pad_with]) |
| TRANSLATE (Microsoft 365) | Translates a text from one language to another | TRANSLATE(text, from_language, to_language) |
| TRIM | Removes spaces from text | TRIM(text) |
| UNICHAR (2013) | Returns the Unicode character that is references by the given numeric value | UNICHAR(number) |
| UNICODE (2013) | Returns the number (code point) that corresponds to the first character of the text | UNICODE(text) |

| | | |
|---|---|---|
| UPPER | Converts text to uppercase | UPPER(text) |
| VALUE | Converts a text argument to a number | VALUE(text) |
| VALUETOTEXT (2021) | Returns text from any specified value | VALUETOTEXT(value, [format]) |

### User defined functions that are installed with add-ins

If add-ins that you install contain functions, these add-in or automation functions will be available in the User Defined category in the Insert Function dialog box.

User-defined functions (UDFs) are not available in Excel for the web.

| Function | Description | Syntax |
|---|---|---|
| CALL | Calls a procedure in a dynamic link library or code resource | CALL(function_text, argument1, [argument2], ...) |
| EUROCONVERT | Converts a number to euros, converts a number from euros to a euro member currency, or converts a number from one euro member currency to another by using the euro as an intermediary (triangulation) | EUROCONVERT(number, source_currency, target_currency, [full_precision], [triangulation_precision]) |
| REGISTER.ID | Returns the register ID of the specified dynamic link library (DLL) or code resource that has been previously registered | REGISTER.ID(reference_text) |

### Web Functions

Web functions are not available in Excel for the web.

| Function | Description | Syntax |
|---|---|---|
| ENCODEURL (2013) | Returns a URL-encoded string | ENCODEURL(text) |
| FILTERXML (2013) | Returns specific data from the XML content by using the specified XPath | FILTERXML(xml, xpath) |
| WEBSERVICE (2013) | Returns data from a web service | WEBSERVICE(url) |