

EDUCATION AND TRAINING

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Advanced Microsoft Excel

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Power User Features

Creating Drop-down Lists

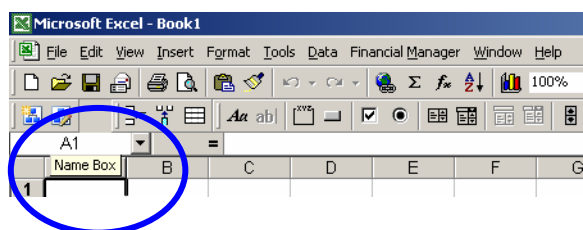
Excel cells can reference other cells in the form of a drop-down list. You can limit cell data or entries by creating a list of choices and then having the choices available in the form of a drop-down list.

To use the drop-down list feature, first create a list of valid entries. Next name the column by selecting the cells, clicking the name box, and typing a name for the list of entries. Then select the cell where the drop-down list will be placed. Finally click Data, Validation, Settings, Allow, List, and type *=name*.

Naming Cells

You can name your cells so that instead of writing a formula such as $(=A2-A3)$, your formula can be written $(=income-expenses)$. Note: **No spaces** are allowed in cell names.

To name a cell, click in the cell you wish to name and type the name of the cell in the Name Box. The Name Box is located on the Excel screen near the toolbars.



In addition to naming one cell, you can name a range of cells. To name a range of cells, select all of the cells, click Insert, Name, Define, and type a name for the range of cells. Assigning a name to a range of cells changes a formula such as $=(A5:A10)-(B5:B10)$ to $=Income-Expenses$

The F3 key brings up the Paste Name dialog box. This is convenient when you are in the middle of writing a formula and want to verify the correct the name or spelling of the named cell or cells.

Lab 1:

1. Open the PowerUser2 Worksheet.
2. Name the range of cells H2:H9 "Type".
3. Create a drop-down list for cells B2:B169 to reference the Type range.

Using Macros to Repeat Tasks

What is a macro? Macros are recordings of a sequence of events that can automate tasks. They are a great way to save time since they perform many events with a single click of your mouse.

Macros have many uses. If there is a task that you do repeatedly, you can save yourself time by creating a macro.

Making Changes to Multiple Worksheets at Once

Excel allows you to make changes to multiple worksheets contained in the same workbook at the same time. To use this feature:

1. Select the tabs of the worksheets you would like to format. To select more than one worksheet, hold the CTRL button down as you click on the worksheet name (tab).
2. Make the formatting changes to the worksheet that is displayed. You can insert or remove columns and rows, change the font, apply cell borders, patterns, or fill colors.
3. Deselect the worksheets by clicking on a single worksheet tab. Your formatting changes should have been applied to all the worksheets that were selected.

Lab 2:

1. Open the PowerUser1 Worksheet.
 2. Record a macro to format the first row of the worksheet, using bold font, borders, and shading. Name your macro "Formatting."
 3. Open the PowerUser2 Worksheet and run the formatting macro.
 4. Select worksheets 1, 2, and 3 in the PowerUser Workbook and insert a column between columns A and B. Highlight column A and change the format to Date. Highlight column B and change the format to Accounting.
 5. Deselect the worksheets by clicking on the PowerUser1 worksheet.
-

Inserting Excel into a Word Document

Microsoft programs are intended to be used together. If you have a Microsoft Word document into which you want to insert an Excel Worksheet, first copy the Excel sheet including headings (select all then press CTRL + C). Then open the Word document, click Edit, Paste Special, and select Microsoft Excel Worksheet Object. This will insert your Excel worksheet wherever the cursor was located in your Word document.

To insert your Excel worksheet so that changes are kept up to date, you can use the Paste Link feature in Microsoft Word. After copying your Excel sheet and opening the Word document, click Edit, Paste Special, and click next to the words Paste Link. This will ensure that your Excel workbook is always up to date in your Word Document. When you open your Word Document, you will be prompted to update the linked workbook.

Lab 3:

1. Open PowerUser2 worksheet and copy cells A1 through G20.
 2. Open Microsoft Word.
 3. Click Edit, Paste Special, and Select Microsoft Excel Worksheet Object. Make sure you also click "Paste Link."
 4. Change the quantity of 9/27/04 from 300 to 30. (Notice that Excel opens for the change to be entered. Click the Word document in the taskbar to minimize the document).
 5. Close Word. Save the document as Excel Link.
-

Pivot Tables

Pivot Tables are great for data analysis since they allow you to quickly create many different views using the same data. To get started, you need an Excel worksheet with more than two fields of data.

- Pivot Tables do NOT update automatically; you need to press “!” to refresh the data.
- It is critical that your information contains column labels in the top row of your Excel worksheet.
- Each column should contain one type of data (text or numbers).
- There should be no completely blank rows or columns in your range of data.

Pivot Tables can be very advanced and allow you the capability to quickly change the view of the data. There are a few basic pieces of information to know before getting started with Pivot Tables:

1. Data—the value or the information that you are working with
2. Category—the description of the data
3. Column Field—arranged as a column (vertically)
4. Data Area—the cells containing the data
5. Row Field—arranged as a row (horizontally)

Lab 4:

1. Open the Audit Worksheet in the PowerUser Workbook.
 2. Click once in cell A2.
 3. Click Data, Pivot Table, and click Finish.
 4. Drag Month onto the Row Field.
 5. Drag Collector Number next to Month (in the Row Field).
 6. Drag Overage into the Data Items Field.
 7. Format the cells in Column C for Accounting.
 8. Drag Collector Number to the left of Month to see the report change.
-

9. Rename Sheet 1 to Pivot Table and save.

Using Pivot Charts

1. Click the Chart Wizard button on the Pivot Table toolbar.
 2. Drag Month back to the Pivot Table toolbar.
(Note: Any changes made to either the Pivot Chart or the Pivot Table affect the other).
 3. Rename Chart 1 to Pivot Chart and save.
-

Pivot Tables

The Parts of a Pivot Table

Anatomy of a Pivot Table Report

| | A | B | C | D | E |
|----|--------------|-------------|-----------|--------|--------|
| 1 | Year | 1997 | | | |
| 2 | | | | | |
| 3 | Sum of Sales | | Type | | |
| 4 | Region | Salesperson | Beverages | Dairy | Meat |
| 5 | East | Buchanan | 1,132 | | 16,191 |
| 6 | | Davolio | 8,334 | 14,474 | 1,441 |
| 7 | | Dodsworth | 1,898 | | |
| 8 | | Suyama | 7,538 | 4,356 | 265 |
| 9 | East Total | | 18,902 | 18,830 | 17,897 |
| 10 | North | Buchanan | 3,522 | 4,562 | |
| 11 | | | | | |

You may have noticed that Excel uses specific terms to identify the parts of a Pivot Table report. If you're not familiar with these terms, read this section for a quick primer.

| | |
|---------------------|---|
| Row Field | A field from the source data that you assign to a row orientation in a Pivot Table report. For example, Region and Salesperson are row fields. |
| Column Field | A field from the source data that you assign to a column orientation in a Pivot Table report. For example, Type is a column field. |
| Page Field | A field from the source data that you assign to a page (or filter) orientation in a Pivot Table report. For example, Year is a page field. You can use the Year field to display summarized data for only 1997, 1998, and so on. |
| Item | A subcategory of a row, column, or page field. For example, the Type field contains the following items: Beverages, Dairy, Meat, and Produce; the Salesperson field contains the following items: Buchanan, Davolio, Dodsworth, and Suyama. |
| Data Field | A field from the source data that contains data to be summarized. For example, Sum of Sales is a data field. A data field usually summarizes numeric data, but it can also summarize text. For example, you can count the number of times a specific text entry (such as Yes or No) appears in a field. |
| Data Area | The cells in a Pivot Table report that contain summary data. For example, the value in cell C5 summarizes Buchanan's beverage sales for the East region in 1997. In other words, it's a summary of the sales figures for every row in the source data that contains the items Buchanan, Beverage, East, and 1997. |

Success with Pivot Tables

Secrets to success with Microsoft® Excel Pivot Table® reports

Before you use the Pivot Table and PivotChart Wizard to create a Pivot Table report, keep in mind that you should:

Ask yourself what you want to know. This tells you which fields you want to use.

Check your source data.

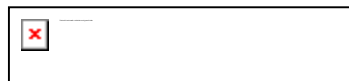
The first row must have headings for each column of data.

There should be no completely blank rows or columns within the range of data used for the report.

Each column should contain only one kind of data—for example, include text in one column and numeric values in a separate column.

Excel automatically creates subtotals and grand totals in a Pivot Table report. If the source data contains automatic subtotals and grand totals created with the **Subtotals** command on the **Data** menu, use that command to remove them before you create the report.

A list with automatic subtotals and grand totals is outlined so that you can see its structure.



Remember the rules for where to drop data in the layout:

Row Fields displays data vertically in rows.

Column Fields displays data horizontally across columns.

Data Items is where numerical data is summarized.

Page Fields displays data as pages and allows you to display data for a single item (for example, one country) or for all the items at once.

Do not worry about arranging a layout in the "wrong" way. Changing the layout usually takes just seconds to do and is an expected part of the process.

Rename field headings

Gray boxes in the Pivot Table report contain the names of fields.

If you like, you can rename the fields. Click the field name, retype, and then press ENTER.

Change sort order

Click the field heading or any cell in the list that contains the data you want to sort.

On the **Pivot Table** toolbar, click **Pivot Table**, and then click **Sort and Top 10**.

Under **AutoSort options**, click **Descending** or **Ascending**.

Click **OK**.

Format numbers

Click a cell that contains numerical data or the name of the field heading for that data.

Click the **Field Settings** button on the **Pivot Table** toolbar and then click **Number**.

In the **Format Cells** dialog box, click any option in the **Category** list.

Click **OK** twice.

Refresh data

After changes to information in the source data, click the **Refresh Data** button on the **Pivot Table** toolbar.

Change how data is summarized

Click a cell in the data area or the field heading for the data area.

Click the **Field Settings** button on the **Pivot Table** toolbar.

In the **Summarize by** list, click an option and then click **OK**.

Show all page fields on different worksheets

With a page field, you can choose whether to see the data for all the items in the field at once or in groups of items. You can see different views by clicking the downward-pointing arrow alongside the field name.

You can also display the different page fields on different worksheets.

On the **Pivot Table** toolbar, click **Pivot Table** and then click **Show Pages**. In the **Show Pages** dialog box, click **OK**. The various pages will appear as worksheet tabs.

Changing Your View with Pivot Tables

Adding Fields—drag additional fields into the appropriate “drop area” of the pivot table.

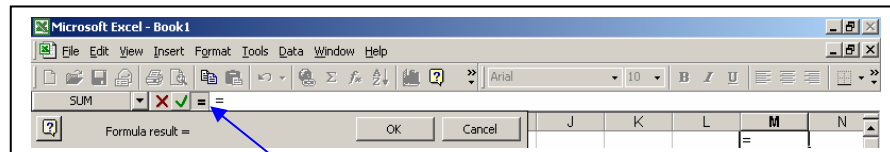
Grouping—To group fields, right click the field, point to Group and Show Detail, and select the field to group by. To ungroup, right click the field again, point to Group and Show Detail and then click Ungroup.

Rearranging the Rows—To change the order of the pivot table, drag the field to the right of the field you want it to come after.

Row Fields Matter!—The items in the outermost row field (farthest from the data) are displayed only once while those in the inner row fields (closest to the data) are repeated as necessary.

Writing Formulas

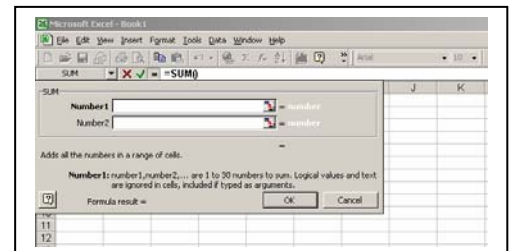
Basic Formulas



To turn on the formula bar, click on View and then check Formula Bar.

To write a formula using the formula bar:

1. Click in the cell where you want to put the formula
2. On the formula bar click the equal sign
3. Click on the drop-down arrow to the left of the equal sign and select the type of formula you want to use. (sum, product, average, count,...)
4. Once you click on the type of formula you are using, another field appears asking for information regarding that formula type. The example on the right shows the required information for a sum type of formula. You have the option of entering the cell name (ex: B4) or clicking on the button to the right of the text box and clicking on the specified cell.



- Click the OK button to finish and have the formula added to your worksheet. If you do not like the results or change your mind about the formula type, click cancel and start over.

Writing Basic Formulas

If you know the formula, you do not have to use the formula bar. To enter a formula without the formula bar, just type:

| Function | Formula | What it Does |
|---------------------|-------------------------------|---|
| Sum | =sum(A1:A5) | Finds the sum of the data in cells A1 through A5. |
| | =sum(A1,A5) | Finds the sum of the data in cell A1 and A5. |
| | =sum(A1:A5,B2) | Finds the sum of the data in cells A1 through A5 AND cell B2. |
| Average | =average(A1:A5) | Finds the average of the data in cells A1 through A5. |
| | =average(A1,A5) | Finds the average of the data in cells A1 and A5. |
| | =average(A1:A5,B2) | Finds the average of the data in cells A1 through A5 AND cell B2. |
| If | =IF(B3>C3,"Over Budget","OK") | If the number in cell B3 is greater than the number in cell C3, then put the Word "Over Budget", otherwise put the Word "OK". |
| Count | =count(A1:A5) | Counts the number of entries in cells A1 through A5. (Each entry counts as 1, so if each of the five cells has an entry, the answer will be 5.) |
| Maximum | =max(A1:A5) | Identifies the largest value in the group of cells from A1 through A5. |
| Minimum | =min(A1:A5) | Identifies the smallest value in the group of cells from A1 through A5. |
| Today's Date | =today() | Enters today's date into the worksheet. |

**Note: Do not put any spaces into your formulas, or you will get an error message!

Formulas and Functions

Over 300 functions offering the ability to perform many different calculations of text and numbers are available in Excel 2000. The functions are broken down into different categories including:

- Financial
- Date and Time
- Math and Trigonometry
- Statistical
- Look-up and Reference
- Database
- Text
- Logical

Add-ins

In addition to the functions that are installed with Excel, there are many add-ins available. To install the add-ins, click Tools, Add-ins, and select the add-ins that you wish to install. Once you click OK, your toolbar will be updated. The available add-ins vary depending upon the version of Microsoft Office you have installed. With Microsoft Office 2000, the add-ins include:

- Access Links – allows the option of using Excel worksheets to get Access forms and reports.
- Analysis ToolPak – provides financial and scientific data analysis capabilities.
- Autosave – automatically saves your Excel file at specified time intervals.
- Conditional Sum Wizard – helps sum data in lists.
- Lookup Wizard – helps create forms to find data in lists.
- Report Manager – creates reports combined with worksheet views for data scenarios.
- Solver – provides optimization and equation solving.
- Template Wizard with Data Tracking – creates form templates with data tracking.

Lab 5:

1. Open the Audit Worksheet in the PowerUser Workbook.
-

2. Click Tools, Add-ins, and select Access Links. Click OK.
 3. Select cell A2 in the PivotPractice Worksheet.
 4. Click Data, MS Access Report, and click OK.
 5. Once Microsoft Access opens move the following fields into the selected fields category by clicking the field name and the > symbol. The fields to move include Month, Collector Number, and Overage. Once you have the fields moved over, click Finish to view your report.
Be Patient! It takes a minute or two for the report to generate.
 6. Notice that Microsoft Access is the program that is open while you are viewing your report; however your data is housed in Microsoft Excel.
 7. Close Microsoft Access. You will see that you now have a button at the top of your Excel Workbook so that you can quickly view the report you just created.
 8. You can rename the button by right-clicking and selecting Edit Text.
-

Operators

To perform simple mathematical calculations, formulas can be written using operators or symbols. The operators can also be combined with functions to calculate more advanced formulas.

| Operator | Name | Sample Formula |
|----------|---|---|
| - | Subtraction | =A1-A2 |
| - | Negation | <i>As in -5 (negative five)</i> |
| \$C\$3 | Absolute Reference | <i>= \$C\$3 regardless of changes, the data will come from cell C3.</i> |
| \$C3 | Column C is an Absolute Reference, Row 3 is a Relative Reference | |
| % | Percent | |
| & | Concatenation | =A1&A2 <i>(Joins the information in both cells)</i> |
| Σ | Automatic Sum Symbol | <i>Press the symbol when you want Excel to automatically sum (add) the cells. Excel will highlight the cells that appear to be intended for the sum function.</i> |
| * | Multiplication | =A1*A2 |
| , | Read as AND; used to include cells listed | =Average(A1,A5:A8) <i>find average of cell A1 AND cells A5 through A8</i> |
| / | Division | =G3/C3 <i>(G3 divided by C3)</i> |
| : | Read as Through; used to include all cells between the two listed | =Average (A1:A8) |
| ^ | Exponentiation | =6^3 <i>(Raises 6 to the third power)</i> |
| + | Addition | =A1+A2 |
| < | Less Than | =A1<A2 <i>(Returns True or False)</i> |
| <= | Less than or Equal to | =A1<=A2 <i>(Returns True or False)</i> |
| <> | Not Equal To | =A1<>A2 <i>(Returns True of False)</i> |

| | | |
|-------|--|--|
| = | Equal To | =A1=A2 (Returns True or False) |
| > | Greater Than | =A1>A2 (Returns True or False) |
| >= | Greater than or Equal to | =A1>=A2 (Returns True or False) |
| C\$3 | Column C is a Relative Reference, Row 3 is an Absolute Reference | |
| C3 | Relative Reference | =C3 if changes are made (added or deleted columns or rows, the data that was in cell C3 will be referenced; for example if a row is added before cell C3, the referenced cell will be cell C4. |
| f_x | Paste function button | |

Order of Operations

The following order is used for calculations.

1. All operations that lie inside parentheses.
 2. Any work with exponents or radicals.
 3. Working from left to right, all multiplication and division.
 4. Working from left to right, all addition and subtraction.
 5. Any concatenation (&)
 6. Equal to, Less than, or Greater than.
-

Common Error Messages

| Message | Cause |
|---------|---|
| ##### | The information does not fit in the column. Solve by widening the cell. |
| #REF! | A cell in the formula does not exist or the name is spelled wrong. Open the formula and correct the cell reference. |
| #NAME? | The name of the cell or function is misspelled. Open the formula and correct the cell or function name. |
| #VALUE! | A cell in the formula contains text rather than a numerical value. Remove the referenced cell from the formula or adjust the cell contents so it contains a number. |
| #DIV/0! | The denominator of the formula is zero. Solve using an IF statement so the calculation is only done IF the denominator is greater than zero. |

Advanced Formulas

Calculating a Running Balance

This formula is written so that the debits and credits are subtracted from the starting or previous lines balance creating a new balance based on the current data.

In this scenario, cell F2 contains our starting balance; Column D contains the credits; and Column E contains the debits.

Enter the following formula in cell F3: `=sum(F2,D3,-E3)`

As you enter new transactions, copy this formula into the balance cell for each new transaction—use the handle to pull the formula down.

Lab 6:

1. Open the PowerUser3 Worksheet in the PowerUser Workbook.
2. Enter the following in cell F3: `=sum(F2,D3,-E3)`
3. As you enter new transactions, copy this formula into the balance cell for each new transaction. Use the handle to “pull” the formula down.

Joining Information in Different Cells

Excel formulas can be written to combine text or numbers in more than one cell into a new cell. In addition, text, numbers, characters, or a combination can be added to the new cell.

In this scenario, cell B3 contains the first name and cell C3 contains the last name.

To display the names with first name then last name, enter the following formula in cell G3: `=B3&" "&C3` (be sure to include the quotation mark, a space, followed by another quotation mark between the first and last name).

To display the names with the last name, first name, enter the following formula in cell G4: `=C3&", "&B3` (make sure to include the quotation, a comma, a space, and another quotation mark).

Lab 7:

1. Open the Lookup Worksheet in the PowerUser Workbook.
 2. Enter the following in cell G8: `=A8&" "` started on “&D8
-

Hiding Zero Values

There are two options to change the display so that zero values are not shown

...with Conditional Formatting.

1. Select the cell that contains the zero value.
2. Click Format, and select Conditional Formatting.
3. Click Cell Value Is and Equal To
4. Type 0.
5. Click Format, Font, and select the color white.

...with Formulas

1. Select your formula, example formula: =A2-A3
2. Add the following to your formula:
 - a. =IF(A2-A3=0,"",A2-A3)
 - b. The addition to the formula can be translated as if the answer to A2-A3 is zero, then type nothing ("") otherwise (,) find the answer to A2-A3.

Create a Total IF a Condition Exists

If you want to only add the items that meet a specific condition, use the Sum If function. For example, if you are working on a report in your practice workbook using Tab 4 and want to know the total cost for Area 1 supplies, your formula in cell I2 is:

```
=sumif(C2:C169,01,F2:F169)
```

*This example is adding **if** the number 01 exists, so no quotation marks are needed*

Additionally, if you wanted to find the total cost for Canal District supplies, your formula in cell I3 should be:

```
=sumif(a2:a169,"canal",F2:F169)
```

This example requires the use of quotation marks around the word Canal, since we are asking the program to look for text.

Lab 8:

1. Open the Audit Worksheet in the PowerUser Workbook.
-

2. Write the following formula in cell G2: =sumif(B2:B200,1,E2:E200)

Using Functions

Financial Functions

Predicting a Trend

This function predicts new values based on a range. For example, by selecting the range of cells showing earnings for the last 6 months, the earnings for the next months will be calculated.

Cells B2:B8 contain the earnings for the last six months. The first trend formula is placed in cell B9 and then continued into cells B10, B11, ...

=TREND(B3:B8)

Lab 9:

1. Open the Trend Worksheet in the PowerUser Workbook.
2. Write the following formula in cell B23: =TREND(B2:B22)

Date and Time Functions

Adding Days

Add a specific number of days to a date.

Cell A2 contains the date and cell B2 contains the number of days to add.

=A2+B2

Adding Months

Add a specific number of months to a date.

Cell A2 contains the date and cell B2 contains the number of months to add.

=date(Year (A2) + B2, Month (A2), Day (A2))

Adding Years

Add a specific number of years to a date.

Cell A2 contains the date and cell B2 contains the number of years to add.

=date (Year (A2) + B2, Month (A2), Day (A2))

Adding a Combination of Days, Months, or Years

Add a specific number of days, months, or years to a date.

Cell A2 contains the date.

=date(Year(A2)+3, Month (A2) +1, Day (A2) + 5)

(above example adds 3 years, 1 month , and 5 days to the current date)

Adding Time

Add a specific number of hours or minutes to a time.

Cell A3 contains the time and cell B3 contains the number of hours to add.

=A2 + Time (C2, 0, 0)

=A2 + Time (1, 4, 20)

(adds 1 hour, 4 minutes, and 20 seconds to the time in cell A2)

Calculate the Difference Between Two Dates

Calculates the number of days between two dates.

Cell A4 contains the first date and cell A5 contains the second date.

=A5-A4

=month(A5) – month (A4)

Calculate the Number of Workdays Between Two Dates

Calculates the number of workdays between two dates.

=NETWORKDAYS(A2,A3)

(above example adds 3 years, 1 month , and 5 days to the current date)

Count Days from Today

Cell A4 contains a specific date.

=A4-Today()

Convert Days to Hours

Cell A6 contains the number of days.

=CONVERT (A6, “day”, “hr”)

Convert Hours to Minutes

Cell A7 contains the number of hours.

=CONVERT (A7, "hr", "min")

Convert Years to Days

Cell A8 contains the number of years.

=CONVERT (A8, "yr", "day")

Convert Standard Format Time to Decimal Format Time

Cell A9 contains the time in standard format.

=(A9 - INT (A9))*24

Convert Decimal Format Time to Standard Format Time

Cell A10 contains the time in decimal format.

=TEXT (A10/24, "h:mm")

Math & Trig Functions

Rounding to Whole Number

Round a number to the nearest whole number.

=Roundup (A2, 0)

Rounding to Nearest Hundredth

Round a number to the nearest hundredth (two decimal places).

=Roundup (A2, 2)

Rounding to Nearest Even Number

Round a number to the nearest even number.

=Even (A2)

Rounding to Nearest Odd Number

Round a number to the nearest odd number.

=Even (A2)

Rounding Down to the Nearest Whole Number

Round a number down to the nearest whole number.

=Rounddown (A2, 0)

Rounding Down to the Nearest Hundredth

Round a number down to the nearest hundredth (two decimal places).

=Rounddown (A2, 2)

Rounding to Nearest Number

Rounds a number up or down to the nearest whole number depending on tenth place.

=Round (A2, 0)

Rounding to Specific Number of Digits

Rounds a number up or down to the specified number of digits.

=Round (B2, 3-LEN (INT (A2)))

Rounding Multiples

Rounds a number to the nearest specified multiple. In this example, B2 will be rounded to the nearest multiple of 5.

=mround (B2, 5)

Statistical Functions

Count Cells

Counts the number of cells with information in them.

=count (A1:A7)

Count Cells with Data

Counts the number of cells with data in them..

=counta (A1:A7)

Count Blank Cells

Counts the number of blank cells—will only count cells with no formula and no data.

=countblank (A1:A7)

Count If a Specific Condition is Met

Counts the cell if specified numbers or text exists.

=countif (B1: B7,"Secretary")

Can be modified using the wildcard; ***pen*** will look for anything with the letters pen.

=countif (A1:A5,">-"&B12)

=countif (A1:A5,">10")-countif (B1:B10, ">20")

counts if data is between 10 and 20

Database and Reference Functions

VLookup

Finds the value in rows that are sorted in ascending order. Row and column labels are not necessary. The format for the formula is:

=vlookup(item to find, range, column # with answer)

=vlookup("Smith",A1:D15,4,FALSE)

Will lookup the name Smith in the first column and return cell contents in the 4th column of the same row.

HLookup

Finds the value in columns that are sorted in ascending order. Row and column labels are not necessary.

=Hlookup("M&O",A1:C4,3)

Finds M&O in the first row and returns the value from row 3 in the same column.

Index

References the cell at a specified intersection of columns and rows.

Match

Provides the relative reference of a cell within a range based on the value to lookup.

=index(A2:B5,Match("M&O",A2:A5,0),2)

Looks up M&O in column A and returns the value for M&O in column B.

Offset

=offset(A1,Match("M&O",A2:A5,0),1)

looks up M&O in column A and returns value from column B.

Lab 10:

1. Open the Lookup Worksheet in the PowerUser Workbook.
 2. Type the following formula in cell C2: =vlookup(B2,B5:E24,2,False)
PRESS CTRL + SHIFT + ENTER
-

Text Functions

Upper

Changes text to all uppercase.

=upper(A2)

Lower

Changes text to all lowercase.

=lower(A2)

Proper

Changes text to all propercase (first letter of each word is capitalized).

=proper(A2)

Concatenate (join together)

Combines the information in more than one column. Additional information can be added in between the referenced data. Some examples follow.

To combine cells A2 and B2 with a space in between the contents:

=concatenate(A2," "B2) **OR** =concatenate(A2&" "&B2)

To add Words to the combined contents:

=concatenate(A2," sold ",B2," units.") **OR** =A2&" sold "&B2&" units."

To display only the last four digits of cell B2's contents:

=concatenate"***-**-",RIGHT(B2,4))

To remove characters from text:

=LEFT(A2,LEN(A2)-2)

will remove the last 2 characters from the information in cell A2

=RIGHT(A3,LEN(A3)-8)

will remove the first 8 characters from the information in cell A3

To repeat a character in a cell:

=REPT(".",6)

will repeat . 6 times

To delete extra spaces:

=TRIM(A2)

will delete all spaces except single spaces between Words for cell A2.

To capitalize and remove extra spaces:

=Proper(Trim(A2))

Capitalizes the first letter of each word and removes extra spaces between words.

Lab 11:

1. Open the Lookup Worksheet in the PowerUser Workbook.
2. Write the following formula in cell G5: =upper(A5)
3. Write the following formula in cell G6: =lower(A5)
4. Write the following formula in cell G7: =proper(A5)
5. Write the following formula in cell G8: =(A8&" started "&C8)
6. Write the following formula in cell G9:
=concatenate"***",RIGHT(B9,3)

Logical Functions

IF

The "If statement" is used in formulas so that if a certain condition is met, one thing should happen. If the condition is not met, something else should happen. If statements can become even more useful when combined with functions (NOT, AND, OR).

=if(condition,true,false)

=if(D2=5,"OK","Not OK")

if the value of D2 is 5 return OK, otherwise return Not OK

=if(NOT(A2<=15),"OK","Not OK")

if the value in A2 is not less than 15 return OK, otherwise return Not OK

=IF(AND(A2>A3,A2<A4),"OK","Not OK")

if the value in A2 is greater than A3 and less than A4 return OK, otherwise return Not OK.

=IF(OR(A2>A3,A2<A4),"OK","Not OK")

if the value in A2 is greater than A3 or less than A4 return OK, otherwise return Not OK.

=SUM(IF(FREQUENCY(A2:A10,A2:A10)>0,1))

counts the number of unique number values in A2 through A10 but not blank cells or text.

=SUM(IF(FREQUENCY(MATCH(B2:B10,B2:B10)>0),MATCH(B2:B10,B2:B10,0))>0,1)

counts the number of unique text and number values in B2 through B10 but not blank cells.

=COUNTIF(A1:A30,"M&O")

counts all cells in the range of A1 through A30 that contain "M&O"

=IF(A2<9,10%,20%)

if the value of cell A2 is less than 9, then show 10%, otherwise show 20%.

=IF(A2>10,B3*2,B6*2)

if the value of cell A2 is greater than 10, then multiply the contents of cell B3 by 2; otherwise multiply the contents of cell B6 by 2.

Keyboard Shortcuts

| Task | Keyboard Shortcut |
|---|----------------------|
| Insert new worksheet | SHIFT+F11 |
| Insert cells | CTRL+SHIFT+PLUS SIGN |
| Select the entire worksheet | CTRL+A |
| Select the entire column | CTRL+SPACEBAR |
| Select the entire row | SHIFT+SPACEBAR |
| Move to the beginning of the worksheet | CTRL+HOME |
| Move to the last cell of the worksheet | CTRL+END |
| Display the help task pane | F1 |
| Repeat the last command | F4 |
| Create a chart of the data in the current range | F11 |
| Remove the cell data and formulas | DELETE |
| Cancel an entry in the cell or Formula Bar | ESC |
| Applies the currency format with two decimal places | CTRL+\$ |
| Copy | CTRL+C |
| Paste | CTRL+V |
| Save | CTRL+S |
| Print | CTRL+P |

Excel Keyboard Shortcuts

| | |
|---|-------------------------------------|
| Alternate between displaying cell values and displaying cell formulas | CTRL+` (single left quotation mark) |
| Calculate all sheets in all open workbooks | F9 |
| Calculate the active worksheet | SHIFT+F9 |
| Copy | CTRL+C |
| Create a chart that uses the current range | F11 or ALT+F1 |
| Display the Format Cells dialog box | CTRL+1 |
| Display the Go To dialog box | F5 |
| Fill the selected cell range with the current entry | CTRL+ENTER |
| Insert the current time | CTRL+: |
| Insert today's date | CTRL+; |
| Move to the beginning of the worksheet | CTRL+HOME |
| Move to the last cell on the worksheet (containing information) | CTRL+END |
| Open | CTRL+O |
| Paste | CTRL+V |
| Paste a function into a formula | SHIFT+F3 |
| Print | CTRL+P |
| Save | CTRL+S |
| Select all (when you are not entering or editing a formula) | CTRL+A |
| Select the current column | CTRL+SPACEBAR |
| Select the current row | SHIFT+SPACEBAR |
| Undo | CTRL+Z |
| When you enter a formula, display the Formula Palette after you type a function name | CTRL+A |

Other Helpful Sites

| Website Title | Website Address |
|-----------------------------|---|
| Microsoft Office on the Web | http://office.Microsoft.com |
| The Excel Forum | http://www.Excelforum.com/ |
| Dot XLS Consulting | http://www.dotxls.com/ |
| Excel User Portal | http://www.Exceluser.com/help/index.htm |
| Excel Maniacs | http://www.Excelmaniacs.com/ |

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