

Table of Contents

Using Lucid 3-D for Windows

Commands

Reference

Using Lucid 3-D for Windows

[Adding axes grids to graphs](#)
[Adding borders](#)
[Adding graph titles](#)
[Adding headers and footers](#)
[Adding shadow to floating objects](#)
[Adding text to floating objects](#)
[Adjusting column widths](#)
[Adjusting row heights](#)
[Aligning text and numbers](#)
[Assigning macros to push buttons](#)
[Auditing spreadsheets](#)
[Changing colors and patterns in a graph](#)
[Changing graph fonts](#)
[Changing graph types](#)
[Changing the layout of a printed page](#)
[Choosing a command](#)
[Closing the active window](#)
[Connecting to a palmtop, handheld, or PDA computer](#)
[Copying and saving data in a different file](#)
[Copying and pasting data from a note](#)
[Creating a graph](#)
[Creating a floating Button Bar](#)
[Creating a floating object](#)
[Creating a pushbutton](#)
[Creating a note](#)
[Cutting, copying and pasting](#)
[Deleting a floating object](#)
[Deleting a note](#)
[Deleting a pushbutton](#)
[Deleting cells, rows, and columns](#)
[Entering text](#)
[Entering values](#)
[Erasing cell contents](#)
[Finding information on your spreadsheet](#)
[Formatting text and numbers](#)
[Hiding and unhiding windows](#)
[Importing files](#)
[Inserting cells, rows, and columns](#)
[Locking and unlocking titles](#)
[Moving floating objects](#)
[Naming a range of cells](#)
[Naming layers](#)
[Opening a spreadsheet](#)
[Pasting data into a note](#)
[Previewing a spreadsheet](#)
[Printing a graph](#)
[Printing cell notes](#)
[Printing a spreadsheet](#)
[Recording a macro](#)
[Replacing data on your spreadsheet](#)
[Resizing floating objects](#)
[Running a macro](#)
[Saving a spreadsheet](#)

[Selecting, creating or deleting a numeric format](#)

[Selecting cells, rows, columns](#)

[Selecting layers](#)

[Selecting floating objects](#)

[Setting global preferences](#)

[Setting spreadsheet preferences](#)

[Setting the default font for your spreadsheet](#)

[Setting up your printer](#)

[Showing cells with notes](#)

[Sorting rows, columns and layers](#)

[Transposing rows and columns in a graph](#)

[Viewing cells as formulas](#)

[Product Support](#)

[Numeric Formatting Codes](#)

Commands

Edit menu commands

File menu commands

Graphics menu commands

Draw menu (Graphics menu)

Graph menu (Graphics menu)

Create command (Graph menu)

Edit command (Graph menu)

Help menu commands

Macro menu commands

Range menu commands

Style menu commands

Tools menu commands

Window menu commands

Cell right-click menu

Floating Object right-click menu

Push Button right-click menu

Reference

Functions
Keyboard

Adding axes grids to graphs

1. Select the graph window.
If your graph is not in a graph window, double-click the graph.
2. Choose Graph Elements from the Format menu.
3. Select Display X Grid to add vertical grid lines to the graph.
4. Select Display Y Grid to add horizontal grid lines to the graph.
5. Choose OK.

Adding borders

1. Select the range to format.
2. Choose Format from the Range menu.
3. Choose Borders from the Format menu.
4. Select the desired border options and choose OK.

Shortcuts



CTRL+B

Cell right-click menu

Related Topics

[Border command \(Format menu\)](#)

Adding graph titles

1. Select the graph window.
If your graph is not in a graph window, double-click the graph.
2. Choose Set Titles from the Format menu.
3. Type in the titles for Graph, X Axis, and Y Axis.
4. Choose OK.

Adding headers and footers

1. Choose Page Setup from the File menu.
2. Choose the Header or Footer button
3. In the text box enter any text or special codes you want to appear in the header or footer. See the Header and footer codes topic for information on header and footer codes.
4. If you want to set up a different font, select the Font button.
5. Choose the Ok button to close the header or footer dialog box.
6. Choose the Ok button to close the Page Setup dialog box.

Adding shadow to floating objects

1. Select the floating object.
2. Click the right mouse button.
The floating object right-click menu appears.
3. Choose Shadow from the floating object right-click menu.
The Shadow option is selected when the Shadow command is preceded by a check mark.

Adding text to floating objects

1. Select the floating object.
2. Type in the text for the floating object.

If the text you type is not shown, the Text option may not be selected. To select the text option,

1. Select the floating object.
2. Click the right mouse button.
The floating object right-click menu is displayed.
3. Choose Text from the floating object right-click menu.

Adjusting column widths

- Drag the line to the right or left of the column to the desired width.

-or-

1. Select the column by selecting any cell in the column.
2. Choose Range|Size.
3. Select Width.
4. Select the appropriate sizing option.
5. Type in the desired width.
6. Choose the OK button.

Related Topics

[Adjusting row heights](#)

[Size command \(Range menu\)](#)

Adjusting row heights

- Drag the line to the right or left of the column to the desired width.

-or-

1. Select the row by selecting any cell in the row.
2. Choose Range|Size.
3. Select Height.
4. Select the appropriate sizing option.
5. Type in the desired width.
6. Choose the OK button.

Related Topics

[Adjusting column widths](#)

[Size command \(Range menu\)](#)

Aligning text and numbers

1. Select the cells to align.
2. Choose Range|Format|Alignment.
3. Select the desired alignment options.
4. Choose the Ok button.

Shortcuts



(to set horizontal and vertical alignment)



(to set left alignment)



(to set center alignment)



(to set right alignment)

Cell right-click menu

CTRL+A

Related Topics

[Alignment command \(Format menu\)](#)

[Cell right-click menu](#)

Assigning macros to push buttons

1. Select the push button.
2. Click the right mouse button.
3. Choose Assign Macro.
4. Select the macro from the Macro List.
5. Choose the OK button.

Shortcuts

Push Button right-click menu

Related Topics

[Creating a push button](#)

[Recording a macro](#)

Auditing spreadsheets

Auditing is analyzing a spreadsheet for accuracy and elimination of errors. The easiest errors to detect and correct are obvious errors, such as a misspelling or incorrect formula or data. These types of errors usually show ERR or an implausible result and are easy to find.

Less obvious errors can be a real menace. Sometimes, in creating a model, you will copy and paste, insert or delete rows or columns, or make other changes. The original formulas no longer reflect the right locations in the sheet. Audit lets you analyze the relationships between cells in the current sheet, as well as the relationships between different sheets linked with File Links.

An Audit is a systematic examination to insure the accuracy of your spreadsheet. The selections on Lucid 3-D's Audit dialog box aid in such a systematic examination. However, the process of verification can be enhanced or hindered by how you build your spreadsheet.

Avoiding Bugs

You can make your spreadsheets easier to understand, therefore easier to verify, by keeping them cleanly laid out, and by making the formulas easy to understand.

1. Use named cells and ranges when writing formulas. For example a formula that reads:
SUM(Monthly Sales)-SUM(Monthly Expenses)
is more comprehensible than its equivalent, without named ranges:
SUM(D8:O8)-SUM(D12:O12)
2. Annotate your formulas. If you are writing a formula of some complexity, use F3 (Note) to put an explanation in that cell. It helps other people who review your spreadsheet and it helps you remember what you were trying to do and why the formula works.
3. Modularize complicated problems. This is where Lucid 3-D really shines. Rather than attempting to put enormous, complicated webs of relationships and data into one big spreadsheet, break it up into its logical components. Organize the problem into layers or referenced spreadsheets, with summary spreadsheets. Keep summary spreadsheets to a single screen.
4. Lay out your spreadsheet in a way that is pleasing to the eye, so that logical relationships between values are reflected in their physical layout on the screen. .
5. If you don't have all the data you need at the time you are constructing the spreadsheet, use the NA() function in place of the missing numbers. All results that depend on data that is not yet available will display NA. If you leave such cells blank, you may omit an important number later.

The Audit Dialog Box

While it is preferable to avoid entering bugs in the first place, Lucid 3-D does provide a means of finding bugs in your spreadsheet. Audit displays a list of various characteristics of the current spreadsheet or a specific cell. You can select which characteristic Lucid 3-D displays. To display the Audit dialog box, choose Audit from the Tools menu.

Choose one of the following characteristics to display.

- **Notes** are annotations to a cell you create by pressing F3 or selecting **Edit Notes**. Select this characteristic to see a list of notes contained in the spreadsheet. To display notes in the spreadsheet itself, use **Tools|Sheet Preferences**.
- **Unreferenced** lists cells containing values (numbers) not used by any formula. Lucid 3-D omits cells that appear in formulas as cell references, or as part of a range that a function uses. A number that you add to the end of a column might be omitted from the total at the bottom. Listing unreferenced cells points out the mistake instantly.
- **Formulas** lists cells in the spreadsheet that contain formulas. You can view them all at once and inspect relationships easily. To display formulas in the spreadsheet itself, use **Tools|Sheet**

Preferences.

- **File Links** lists all occurrences of the REF function in the current spreadsheet. A REF function references another spreadsheet file for its data.
- **Dependents** lists all cells whose values are dependent on the value in a specific cell. It helps you find all the places you use a certain value and helps you decide the best way to change it if necessary.
- **Sources** lists all cells on which the current cell depends. It is particularly helpful when you have named many of the cells and ranges in the spreadsheet. Sources allows you to easily see if this cell depends on a piece of unrelated data.

Unless you specify a particular cell, Audit displays characteristics for the entire spreadsheet. **Dependents** and **Sources** list information for a single cell only. If you do not specify a cell, they examine the cell under the widebar.

Audit lists the information in a pop-up window. Remove the list by pressing ESC or ENTER.

Changing colors and patterns in a graph

1. Select the graph window.
If your graph is not in a graph window, double-click the graph.
2. Position the mouse pointer over the series to modify.
3. Click the right mouse button.
4. Select the color from the Series Color list.
5. Select the style from the Series Style list.

Changing graph fonts

1. Select the graph window.
If your graph is not in a graph window, double-click the graph.
2. Choose Font from the Format menu.
3. Select the fonts from the list boxes provided.

Changing graph types

1. Select the graph window.
If your graph is not in a graph window, double-click the graph.
2. Choose the graph type from the Styles menu.

Changing the layout of a printed page

1. Choose Page Setup from the File menu.
2. Under Margins, choose the top, right, bottom and left margins for the page.
3. Under Paper Size, choose the size of the paper.
4. Under Orientation, select Portrait to print the page horizontally or select Landscape to print the page vertically.
5. To change headers or footers, choose the Header or Footer button.
6. Select any other attributes you want.
7. To preview the printed page, choose the Print Preview button.
8. To change printer settings, choose the Printer button.
9. To print the document, choose the Print button.

Choosing a command

To choose a menu option using the keyboard

1. Press ALT to select the menu bar.
2. Press the underlined character to select the menu.
3. Use the arrows keys to highlight the command.
4. Press ENTER.

To choose a menu option using the mouse

1. Click the menu name containing the command.
2. Click the command.

To choose an option in a dialog box using the keyboard

- Press ALT and the underlined character of option.

To choose an option in a dialog using the mouse

- Click the option.

To perform the command after making your selections

- Click on OK or press ENTER.
- If you wish to cancel the command without making changes, click on Cancel or press ESC

Closing the active window

1. Choose File|Close.
If no changes to the spreadsheet have been made since the last save, Lucid 3-D will exit immediately.
- Choose the Yes button to save changes.
If this is the first time you have saved the spreadsheet, Lucid 3-D will present the Save As dialog box. Type in a file name for the file and choose the Ok button.
- Choose the No button to discard the changes.
Lucid 3-D will not write the changes to disk.
- Choose the Cancel button to cancel closing the window.
Lucid 3-D will cancel the command and the window will remain open.

Connecting to a palmtop, handheld, or PDA computer

Installing Connectivity Packs

You must install connectivity packs on your computer before you can take advantage of their file transfer capabilities.

1. Choose Connect from the File menu.
2. Click **Add** to add a new connectivity pack to the list.
3. Select the filename of the connectivity pack. If you are installing the Casio Connectivity Pack, select **CPCASIO.LCP**. Click OK or press ENTER.
4. Select the communication **Port**. You can select from **COM1**, **COM2**, **COM3**, or **COM4**. If you are unsure which port to select, check the documentation for your computer or the configuration settings on the appropriate hardware device.
5. Select the **Baud** rate. It can be set at **1200**, **2400**, **4800** or **9600**. The default setting is **9600**. Baud rates must be identical on both computers.
6. For **Parity**, choose from **None**, **Odd** or **Even**. **None** is the default. The setting for both computers must be identical.
7. Select a **Bit Length** of **7** or **8** bits. Lucid 3-D reverts to 8 bits regardless since spreadsheet files contain binary data. Bit length must also be identical on both machines.
8. Choose a **Machine Type**. For the Casio Connectivity Pack the choices are **SF Unit** or **ES-630**. These options differ with other connectivity packs.
9. To return **Baud**, **Parity**, and **Bit Length** to their original settings, click **Default**.
10. Click OK or press ENTER to return to the Connectivity Packs dialog box.

Receiving Files

1. Choose Connect from the File menu.
2. Choose **Connect** the Connectivity Pack Main Menu
3. Choose the **Receive** button.
4. Enter a filename and path. If you give the file a .LCW extension, Lucid 3-D automatically converts the file to Lucid 3D for Windows. If you give the file a .BS2 extension, Lucid 3-D stores the file on your computer, but it remains a Casio file. You can open it in Lucid 3-D by choosing Open from the File menu. Lucid 3-D converts it when you open it. Click OK or press ENTER. A Status dialog box appears.
5. The Status dialog box is updated as the data transmits. It indicates the percentage complete, the **Efficiency** percentage, the number of **Blocks** transmitted, the number of **Errors** encountered, and the errors **Corrected**. A special **Status** box explains exactly what is happening throughout the transmission.
6. The **Status** box indicates the successful transfer when the transmission is complete.
7. Choose the OK button to return to the spreadsheet.

Sending Files

1. To send Lucid 3-D for Windows files to a palmtop computer, choose Connect from the File menu.
2. Choose the **Connect** button to view the Connectivity Pack Main Menu.
3. Choose the **Send** button.
4. Enter the name and path of the file you want to send. If the file has a .BS2 extension, Lucid 3-D

just copies it to the palmtop computer. Lucid 3-D converts files with the .LCW extension to the palmtop's native format. Click OK or press ENTER. A Status dialog box appears.

5. The Status dialog box is updated as the data transmits. It indicates the percentage complete, the **Efficiency** percentage, the number of **Blocks** transmitted, the number of **Errors** encountered, and the errors **Corrected**. At the end of transmission, if more errors are encountered than corrected, delete the file from the SF Unit and resend it. A special **Status** box explains exactly what is happening throughout the transmission.
6. When the transmission completes, the **Status** box indicates a successful transfer.
7. Choose the OK button

Copying and saving data in a different file

1. Switch to the spreadsheet containing the information to copy.
2. Select the range of information to copy.
3. Choose Copy from the Edit menu.
4. Switch to the spreadsheet you want to paste the information to.
You may want to save the information to a new file. Choose New from the File menu to create a new spreadsheet.
5. Position the widebar at the upper left corner of the range where you want the copy to occur.
6. Select Paste from the Edit menu.

Copying and pasting data from a note

1. Select the cell containing the note.
2. Choose Note from the Edit menu.
Shortcut: F3
3. Choose Copy from the Edit menu.

You can paste the data from the note into other applications, or other parts of the spreadsheet.

Creating a graph

1. Select the range of cells to graph.
2. Choose Graph from the Graphics menu.
3. Choose Create from the Graph menu.
4. Select the graph type.
5. Select embedded to create a graph as an embedded graph on the spreadsheet.

Creating a floating Button Bar

Floating Button Bars allow you to access command quickly. When you create a floating Button Bar, the buttons on the Button Bar are contained in a window which can be moved around the screen.

1. Choose Button Bars from the Tools menu.
2. Select the Button Bar you want.
3. Choose Show.

-or-

- With the Button Bar visible, click the thumb tack button (the last button on the right side of the Button Bar)

To close the Button Bar window, click the X on the top of the Button Bar window.

Creating a floating object

1. Choose Draw from the Graphics menu.
2. Choose the floating object to draw.
3. Position the mouse pointer to the start of the drawing.
4. Drag the mouse pointer until the object is the shape you want.

Creating a pushbutton

1. Choose Draw menu from the Graphics menu.
2. Choose Push Button from the Draw menu.
The cursor changes to the Push Button cursor.
3. Position the mouse pointer to the start of the drawing.
4. Drag the mouse pointer until the object is the shape you want.

Creating a note

1. Select the cell for the note.
2. Choose Notes from the Edit menu.
Shortcut: F3
3. Type in the note.
4. Choose the OK button.

Cutting, copying and pasting

To cut a selection and place it in the Clipboard

1. Highlight the cell or range.
2. Choose Cut from the Edit menu.
Shortcut: CTRL+X

To copy a selection and place it in the Clipboard

1. Highlight the cell or range.
2. Choose Copy from the Edit menu.
Shortcut: CTRL+C

Deleting a floating object

1. Select the floating object.
2. Press DEL

Deleting a note

1. Select the cell containing the note to delete.
2. Choose Notes from the Edit menu.
Shortcut: F3
3. Choose the Remove button.

Deleting a pushbutton

1. Select the push button to delete.
2. Press DEL.

Deleting cells, rows, and columns

1. Select the range you want to delete.
2. Choose Delete from the Range menu.
3. Choose rows, columns or layers.
4. Choose partial (to insert only in the range you selected) or entire to insert entire rows, columns or layers.
5. Choose the Contents option if you want to shift the contents of the highlighted cells.
6. Choose the Formats option if you want to shift the formats of the highlighted cells.
7. Choose the OK button.

Entering text

1. Select the cell to place the text.
2. Type the text.
The text appears in the cell editor as you type.
3. Choose the Enter box (check mark) or press ENTER.

Entering values

1. Select the cell to place the value.
2. Type the value.
3. Choose the Enter box (check mark) or press ENTER.

Erasing cell contents

Erasing cell contents deletes all cell formatting (borders, colors, etc.) as well as the cell contents.

1. Select the cells to erase.
2. Press DEL.

Finding information on your spreadsheet

1. Choose Find from the Edit menu.
Shortcut: F4
2. Type the text to search for in the Find box.
3. Select Ignore Case for a case-insensitive search.
4. Select Formulas to locate the text in formulas.
5. Select Partial to locate the text which is part of other text.
For example, to find "To" in "Today", select Partial.

Formatting text and numbers

1. Select the cells you want to format.
2. Choose Format from the Range menu.
3. Choose the options to change.
4. Choose the OK button.

Hiding and un hiding windows

You can hide and unhide windows from view. Hiding windows can be useful when using the Tile command. You can limit the number of windows that appear tiled without having to close files you aren't finished with.

To hide a window

1. Select the window to hide.
2. Choose Hide from the Windows menu.

To unhide a window

1. Choose Unhide from the Windows menu.
2. Select the window from the Hidden Windows list.
3. Choose the Show button.

Importing files

1. Choose Open from the File menu.
2. Choose the file format from the available choices in the List File Types Of list.
3. Choose the drive where the file is located in the Drive list.
4. Choose the directory where the file is located in the Directory list.
5. Choose the file from the Files list.
6. Choose the OK button.

Inserting cells, rows, and columns

1. Select the range to the right or below the range you want to insert.
2. Choose Insert from the Range menu.
3. Choose rows, columns or layers.
4. Choose partial (to insert only in the range you selected) or entire to insert entire rows, columns or layers.
5. Choose the Contents option if you want to shift the contents of the highlighted cells.
6. Choose the Formats option if you want to shift the formats of the highlighted cells.
7. Choose the OK button.

Locking and unlocking titles

You can lock labels in the top columns and leftmost rows of the sheet so that they remain in view when you scroll the spreadsheet window. When you lock titles, everything above and to the left of the currently selected cell is blocked as a title region. As you scroll through the spreadsheet, the titles scroll with the window. You can use titles in situations where you have a large spreadsheet that has labels on the top and left that would scroll out of the window when you scroll.

Locked titles also print with the spreadsheet when row and column labels apply to several pages on your printed spreadsheet.

To lock spreadsheet titles

1. Select the cell below and to the right where you want to set titles.
2. Choose Titles from the Windows menu.

To unlock spreadsheet titles

- Choose Titles from the Windows menu.

Moving floating objects

1. Select the floating object to move.
2. Drag the floating object to its new location.

Naming a range of cells

Naming ranges allows you to assign a name to identify a cell or range of cells. Range names can replace cell and range references in functions and formulas. You can use descriptive names, like "Sales" or "Main Office", or even long names like "Total Sales of Spare Parts".

Naming a range of cells

1. Select the range to name.
2. Choose Name from the Range menu.
3. Type in a name for the range in the Name box.
Range names can be up to 255 characters including spaces.
4. Choose the OK button.

Naming multiple ranges of cells

1. Select the first range to name.
2. Choose Name from the Range menu.
3. Type in a name for the first range in the Name box.
4. Choose the Add button.
5. Type in the name for the next range in the Name box.
6. Type in the range for the name.
7. Choose the Add button.
8. Repeat steps 3 through 7 until you have added all the range names.
9. Choose the OK button.

Naming layers

Lucid 3-D for Windows uses tabs to identify spreadsheet layers and labels them with letters of the alphabet. You can rename these tabs, using up to 255 characters for each tab. For example, for the layer containing expenses for travel, you could name it "Travel Expenses".

To name a layer

1. Choose Name Layers from the Tools menu.
Shortcut: click the right mouse button over the Tab
2. Select the tab to name.
3. Type in the new name for the tab.
4. Select a color for the tab.
5. You can name any tab without exiting the spreadsheet.
6. Click the OK button.

Opening a spreadsheet

1. Choose Open from the File menu.

Shortcut: CTRL+F12

The Open dialog box appears. Lucid 3-D displays the files in the current directory. To show files in a different drive or directory, select the drive and directory. If you are importing a file, select the appropriate file type in the List Files of Type list.

2. Type in the file name, or select it from the Files list.
3. Choose the OK button.

Pasting data into a note

You can paste data from the spreadsheet, or other applications, into the note of a cell.

To paste data into a note

1. Copy the data you want to paste into the note.
2. Select the cell containing the note to paste to.
3. Choose Note from the Edit menu.
Shortcut: F3
4. Press CTRL+V or CTRL+INS.

Previewing a spreadsheet

Use the Print Preview command to view spreadsheet pages as they will appear printed.

To preview the printed spreadsheet

1. Choose Print Preview from the File menu.
Shortcut: Print Preview button
2. To print the page from the Print Preview window, choose the Print button.
3. To view other pages of the spreadsheet, select the page in the Page box.

Printing a graph

1. Select the graph to print.
2. Choose Print from the File menu.
3. Set any print options.
4. Choose the OK button.

Printing cell notes

1. Choose Page Setup from the File menu.
2. Select Notes.
3. Choose OK.
4. Choose Print from the File menu.
5. Select any print options and choose the OK button.

Notes are printed on a separate page from the spreadsheet data listed by its cell reference.

Printing a spreadsheet

1. Choose Page Setup from the File menu if you want to set printed page options (headers, footers, margins, etc.)
2. Choose Print Setup from the File menu if you want to set print options.
3. Choose Print Preview from the File menu if you want an on-screen view of the printed page.
4. Choose Print from the File menu.
5. Set the print options and choose the OK button.

Recording a macro

To record a macro, turn on the macro recorder and perform the commands and keystrokes you want the macro to perform. The macro recorder enters each command and keystroke in the macro for you.

Lucid 3-D stores the commands and keystrokes into the macro sheet as a *macro function*. When you run the macro, the macro functions perform the commands and keystrokes. Each cell that you edit requires one cell in the macro sheet and each command requires another cell. You can record up to 1000 commands in each macro.

Lucid 3-D normally records macros using relative references. You can modify Lucid 3-D default settings to record absolute layers (always the same layer), absolute columns (always the same column), absolute rows (always the same row), or any combination of absolute and relative references. See for information on absolute and relative references, see the Using absolute and relative cell references help topic.

Recording a Macro

1. Choose the Create command from the Macro menu.
2. Type a descriptive name for the macro.
3. (Optional) Choose the Options button.
The Record Options dialog box allows you to specify whether the references used to create the macro are absolute or relative.
4. Press ENTER or click the Record button.
5. Perform the actions you want to record.
6. Choose Stop from the Macro menu to end the recording session.

Recording Over an Existing Macro

After using a macro, you may want to record different actions for the macro. To re-record the macro:

1. Choose Create command from the Macro menu.
2. In the Create Macro dialog box, select the name of the macro to re-record.
3. Choose the Record button.
A dialog box appears asking if you want to overwrite the macro.
4. Choose the Yes button.
5. Perform the actions you want to record.
6. Choose the Stop command from the Macro menu.

Replacing data on your spreadsheet

Use the Replace command to find data in your spreadsheet and optionally replace it with something else. See the Finding data on your spreadsheet help topic, to find data on your spreadsheet without replacing it.

To replace spreadsheet data

1. Choose the Replace command from the Edit menu.
Shortcut:SHIFT+F4
2. Type in the text to find in the Find box.
3. Type in the text to replace in the Replace box.
4. If the case of the find text doesn't matter, select Ignore case.
5. If the you want to find text that is part of other words or numbers that are part of formulas, select Partial.
6. Choose Replace to replace the first occurrence of the find text.
7. Choose Replace All to replace all occurrences of the find text.

Resizing floating objects

1. Select the floating object to size.
2. Use the sizing handles to size the floating object, drag the mouse pointer to the new size.

Running a macro

To Run a Macro Using Run command

1. Select the Run command from the Macro menu.
2. In the Macro Run dialog, select the name of the macro to run.
3. Choose the OK button.

To Run a Macro From A Push Button

1. Assign a macro to the push button if you have not already done so.
2. Click the push button.

Canceling Macro Execution

1. Press ESC
The Cancel Macro dialog box appears, asking you if you want to cancel the macro. You may choose to go to the cell where the macro stopped, or continue playing the macro.
2. Click the Stop button.

Saving a spreadsheet

Saving a spreadsheet for the first time

1. Choose Save from the File menu.
Shortcut: SHIFT+F12
2. Type in a file name.
3. Choose the OK button.

Saving a spreadsheet to the same name

- Choose Save from the File menu.

Saving a spreadsheet to a different name, file type, or location

1. Choose Save As from the File menu.
Shortcut: F12
2. If you want to change the file name, type in a new file name.
3. If you want to change the file type, select the type from the List Files of Type list.
4. If you want to change the directory of the file, select the directory from the Directories list.
5. If you want to change the drive, select the drive from the Drives list.

Selecting, creating or deleting a numeric format

To select a numeric format

1. Select the cells for the format.
2. Choose Format from the Range menu.
3. Choose Numeric from the Format menu.
4. Select the numeric format from the Format list.
5. Choose OK.

To create a numeric format

1. Select the cells for the format.
2. Choose Format from the Range menu.
3. Choose Numeric from the Format menu.
4. If you want to change an existing format, choose the format from the Format list.
5. If you want to create a new numeric format, choose the Add button.
6. Type in the format codes in the Sample text box.
7. Choose OK.

To delete a numeric format

1. Choose Format from the Range menu.
2. Choose Numeric from the Format menu.
3. Select the numeric format to remove from the Format list.
4. Choose Remove.

Note: Removing a numeric format will cause any number formatting with the removed formatting to change numeric formats.

Selecting cells, rows, columns

To select a single cell

- Click on the cell or use the arrow keys to move to the cell you want.

-or-

1. Choose Edit|Goto (F5).
2. Type in the cell address.
3. Choose the OK button.

To select a range of cells

- Drag from the first cell to the last cell of the selection.

-or-

1. Select the first cell of the range.
2. Hold down SHIFT or press F8.
3. Press the arrow keys to select the range.
4. Release SHIFT or press F8 to finish selecting.

To select an entire row or column

- Click the row or column heading

Selecting layers

Selecting a layer using the mouse

- Click the left mouse button on the layer name.

Selecting a layer using the Goto command

1. Choose Edit|Goto (F5).
2. Type in the layer name.

Selecting floating objects

1. Locate the floating object on the spreadsheet.
2. Move the mouse pointer over the floating object.
3. Click the left or right mouse button.

Clicking the right mouse button will simultaneously show the floating object right-click menu.

Setting global preferences

Setting global preferences affect the entire Lucid 3-D for Windows application. Some options affect new spreadsheets, others affect every spreadsheet you open. To set the options for the active spreadsheet, see the Setting sheet preferences help topic.

To set global preferences

1. Choose Global Preferences from the Tools menu.
2. Select the options for the Lucid 3-D for Windows environment.
3. Choose the OK button.

Setting spreadsheet preferences

Setting spreadsheet preferences affect the currently active spreadsheet window. See the Setting Global Preferences help topic to control options for all spreadsheets.

To set spreadsheet preferences

1. Choose Sheet Preferences from the Tools menu.
2. Select the options for the spreadsheet.
3. Choose the OK button.

Setting the default font for your spreadsheet

1. Choose Sheet Preferences from the Tools menu.
2. Choose the Font button.
3. Select the font and formatting options.
4. Choose OK.
5. Choose OK.

Setting up your printer

1. Choose Printer Setup from the File menu.
2. To change printers, select the printer from the Specific Printer list.
3. To change printer options, choose the Options button.
Choose the Help button on the Options dialog for specific printer options.

Showing cells with notes

1. Choose Sheet Preferences from the Tools menus.
2. Select Notes.
3. Choose OK.

Cells that contain notes will display a small dot in the upper left hand corner of the cell.

Sorting rows, columns and layers

You can sort selected ranges of your spreadsheet without affecting cells entries outside the selected range.

1. Select the range of cells to sort.
Make sure that you are including all cells you want to sort. Cells outside the range will not be sorted.
2. Choose Sort from the Range menu.
3. Select the method, by Rows, by Columns, or by Layers.
4. Select Ignore Case if you want to sort without regard to case sensitivity.
5. Type the cell reference of your first sort key in 1st.
6. If you want to sort by more than one key, type in the cell reference of the 2nd and 3rd sort keys.
7. Select either ascending or descending for each key selected.
8. Choose OK.

Transposing rows and columns in a graph

1. Select the graph window.
If your graph is not in a graph window, double-click the graph.
2. Choose Graph Elements from the Format menu.
3. Select Transpose Rows and Columns.
4. Choose the OK button.

Viewing cells as formulas

1. Choose Sheet Preferences from the Tools menu.
2. Select Formulas.
3. Choose the OK button.

Product Support

Lucid Customer Support

Contact Customer Support:

- for upgrade information and ordering.
- for referrals to dealers close to you.
- for problems with the package (missing or defective pieces).
- for general information about Lucid and our products.

Lucid Corporation
101 W. Renner Rd. Ste 450
Richardson, TX 75082
Attn: Customer Support

(800) 925-8243 in the U.S.A. and Canada

(214) 994-8100 All others

(214) 994-8103 Fax

Lucid Product Support

Lucid Product Support is available for support on Lucid 3-D for Windows. If you have a question about the operation or function of Lucid 3-D for Windows product, contact Product Support as listed below.

When calling Product Support, do the following before you call:

- Be at your computer.
- Write down what you were doing when the problem occurred.
- Write any error messages that Lucid 3-D for Windows displayed.
- Have your serial number available.

Lucid Corporation
101 W. Renner Rd., Ste. 450
Richardson, TX 75082
Attn: Lucid 3-D for Windows Product Support
(214) 994-8101, 8:30am to 5:30pm (CST)
Monday through Friday
(214) 994-8103 (FAX)

Lucid On-Line Services (Available October 1993)

You may get information electronically by accessing Lucid's corporate bulletin board system (BBS).
Setting for Lucid's BBS are: 300,1200,2400,or 9600 baud; 8 bits, 1 stop bit; no parity.

(214) 994-8125

Includes a Customer Service forum, public-domain software, and support forums on: Third Dimension, Lightning, Lightning for Windows, Lightning CD, Battery Boost, Battery Boost Notebook Utility Pack, Lucid 3-D for DOS and Lucid for Windows.

Compuserve

You may also get information electronically by accessing the Windows Vendor A forum (GO WINAPA).
You may also leave us e-mail on Compuserve at 72662,305.

Numeric Formatting Codes

Format Symbol	Explanation
0	Prints a digit if it exists; otherwise prints "0".
#	Prints a digit if it exists; otherwise leaves a blank space. # must precede 0's on the integer portion of a number and follow 0's on the fractional portion.
, (comma)	Adds commas every three digits. If placed after a #, it leaves a space if not used.
. (decimal)	Specifies the beginning of a fractional portion of a number. Lucid 3-D allows one per format string.
?	One or more ?'s, prints 1 digit of the fractional portion of a number for each ?. This truncates the integer portion of the number.
?/?	One or more ?'s, followed by zero or more spaces, followed by /, followed by zero or more spaces, followed by one or more ?'s defines a fraction. Lucid 3-D represents the fractional part of the number by the closest fraction with the given number of digits in the denominator. This truncates the integer portion of the number. For example, the format "0 and ??/??" and the value 9.876543 yields "9 and 71/81".
e or E	Specifies the beginning of an exponential portion. E is followed by an optional + or - and you must include one or more # 's or 0's. #'s must precede any 0's. E is only valid when you enter it immediately following a number.
%	When following a number, % multiplies the number by 100, and prints the %.
+ (plus)	Prints the sign of the number or leaves a blank space if the number is zero. Lucid 3-D allows one sign format symbol per format string.
- (minus)	Prints a "-" if the number is negative and leaves a blank space if the number is positive or zero.
()	Prints the parentheses around the number if the number is negative, prints blank spaces otherwise. () must surround a number.
[]	Prints the brackets around the number if the number is negative, prints blank spaces otherwise. () must surround a number.
;	Separates format strings. If only one string exists, Lucid 3D uses it for all numbers. If two exist, the first formats negative numbers, the second formats for positive. If three exist, the first formats negative values, the second formats 0 values, and the third formats positive values.
{color}	Changes the color of the number. <i>Color</i> can be Black, Navy, Silver, Blue, Maroon, Purple, Red, Fuchsia, Green, Teal, Lime, Aqua, Olive, Gray, Yellow, or White. Lucid 3D allows one color per format string.
{Th}	Prints "st", "nd", or "rd" if the last integer digit preceding {TH} is a 1, 2, or 3 (and the tens digit is not 1). Prints "th" otherwise.
{Roman}	Prints the integer portion of the number in Roman numerals. Note that the case of Roman numerals is significant. The digits i, v, x, l, c, d, and m are used for 1, 5, 10, 50, 100, 500 and 1000. The digits V, X, L, C, D and M are used for 5000, 10000, 50000, 100000, 500000, and 1000000. The case distinction is necessary because windows can't print the characters that normally represent 5000 - 1000000 (V, X, L, C, D and M superimposed with a horizontal line).
{TextInt}	Prints the integer portion of the number in text ("Three"). Enter {textint} to print in lowercase ("three").

- `{TextIntTh}` Prints the integer portion of the number as an ordinal in text (Third). Enter `{textinth}` to print with no capitalization (third).
- `{TextFract,#}` Prints the fractional portion of the number in text. # is the number of digits of precision to use (One Tenth). Enter `{textfract,#}` to print with no capitalization (one tenth).
- `\` (backslash) Considers it the next character as text. Used to cause other special characters to appear literally. Normal text does not need require this symbol.

Edit menu commands

Undo

Cut

Copy

Paste

Paste Special

Delete

Find

Replace

Goto

Notes

Undo command (Edit menu)

Use the Undo command to cancel most command and actions.

Shortcuts

ALT+BKSPC

CTRL+Z

Cut command (Edit menu)

Use the Cut command to remove the current selection and its formatting and place it in the clipboard. Cutting selections replaces the previous contents of the clipboard.

Shortcuts



SHIFT+DEL

CTRL+X

Copy command (Edit menu)

Use the Copy command to copy the current selection to the clipboard. The selection can be a cell, range, graph, floating object or cell editor.

Shortcuts:



CTRL+C

CTRL+INS

Related Topics

[Copying and saving data in a different file](#)

[Copying data from a note](#)

Paste command (Edit menu)

Use the Paste command to insert the contents of the clipboard onto the current selection. To paste only certain properties from the clipboard, use the Paste Special command (Edit menu).

Shortcuts



CTRL+V

SHIFT+INS

Related Topics

[Paste Special command \(Edit menu\)](#)

[Pasting data into a note](#)

[Copying and saving data in a different file](#)

[Copying and pasting data from a note](#)

[Pasting data into a note](#)

Paste Special command (Edit menu)

Use the Paste Special command to paste specific information from the clipboard onto the current selection.

Shortcuts



CTRL+S

Dialog Box Options

Formats

Select Formats to paste any formatting information contained in the clipboard contents.

Contents

Select Contents to allow for how to paste the clipboard information on the spreadsheet. Select Formulas to paste the formula. Select Values to paste the result only.

Delete command (Edit menu)

Use the Delete command to erase cell contents and formats.

Shortcut

DEL

Find command (Edit menu)

Use the Find command to search the spreadsheet for information.

Shortcuts

F4

Dialog Box Options

Find	Type in the text or numbers you want to search for.
Ignore case	Select Ignore case to ignore the case of the search.
Formulas	Select Formulas to search through formulas also.
Partial	Select Partial if you want to locate the find text, even if it is part of another word or number.

Replace command (Edit menu)

Use the Replace command to search for information and optionally replace it with other information.

Shortcuts

SHIFT+F4

Dialog Box Options

Find	Type in the text or numbers to search for.
Replace	Type in the text or numbers to replace the Find text with.
Ignore case	Select Ignore case for a case-insensitive search.
Partial	Select Partial to find the Find text incased in other words or numbers.

Goto command (Edit menu)

Use the Goto command to move the widebar to specific cell, named range or another layer on the spreadsheet.

Shortcuts

F5

Dialog Box Options

Range	Type in the cell or range you want to move to.
Goto History	A list of Goto commands performed. You can double-click a reference in this list.

Notes command (Edit menu)

Use the Notes command to enter text that provides comments about a cell, but has no effect on the actual cell. Notes are useful for explaining cell contents to other users or as a reminder to yourself.

Shortcuts

F3

Dialog Box Options

Cell	Lists the cell which this note is attached to.
Note box	Type in the text of the note entry.

File menu commands

New

Open...

Save

Save As...

Close

Print Preview...

Page Setup...

Print

Print Setup

Connect...

Exit

New command (File menu)

Use the New command to create an empty spreadsheet with default options. The spreadsheet is open in a new window.

Open command (File menu)

Use the Open command to open existing spreadsheet into a new window. You can have more than one spreadsheet open at a time. In addition to opening Lucid 3-D for Windows files, you can also import files of different file formats (e.g. XLS, WKS).

Shortcuts



CTRL+F12

Dialog Box Options

File Name	Type the file name and extension of the file to open. The file name can have eight characters plus a three character extension. Any characters that are valid for a DOS file name are acceptable. Lucid 3-D for Windows defaults to an extension of LCW for any Lucid 3-D spreadsheet. You can use any valid DOS extension.
List Files of Type	Displays a list of available file types. When you select a file type, the File Name list reflects that selection.
Directories	Displays a list of available directories. When you select a directory, the File Name list reflects that selection.
Drives	Displays a list of available drives. When you select a drive, the Directories and File Name lists reflect that selection.

Save command (File menu)

Use the Save command to save an existing document to the same file name, file type and file location. The first time you save a spreadsheet, Lucid 3-D displays the Save As dialog box, so you can name the spreadsheet. To change the file name, file type, or file location, use the Save As command.

Shortcuts



SHIFT+F12

Dialog Box Options

File Name	Type a new file name and extension. The file name can have eight characters plus a three character extension. Any characters that are valid for a DOS file name are acceptable. Lucid 3-D for Windows defaults to an extension of LCW for any Lucid 3-D spreadsheet. You can use any valid DOS extension.
List Files of Type	Displays a list of available file types. When you select a file type, the File Name list reflects that selection.
Directories	Displays a list of available directories. When you select a directory, the File Name list reflects that selection.
Drives	Displays a list of available drives. When you select a drive, the Directories and File Name lists reflect that selection.

Related Topics

Save As(File menu)

Save As command (File menu)

Use the Save As command to save and name an untitled (new) spreadsheet or to save a copy of an open spreadsheet under a new name. All changes made to the spreadsheet are saved, and you can continue working on the spreadsheet under its new name. Use the Save command to save changes to the same file name, file type, and file location.

Shortcuts



(first time you save the document)

F12

Dialog Box Options

File Name	Type a new file name and extension. The file name can have eight characters plus a three character extension. Any characters that are valid for a DOS file name are acceptable. Lucid 3-D for Windows defaults to an extension of LCW for any Lucid 3-D spreadsheet. You can use any valid DOS extension.
List Files of Type	Displays a list of available file types. When you select a file type, the File Name list reflects that selection.
Directories	Displays a list of available directories. When you select a directory, the File Name list reflects that selection.
Drives	Displays a list of available drives. When you select a drive, the Directories and File Name lists reflect that selection.

Related Topics

[Save command \(File menu\)](#)

Close command (File menu)

Use the Close command to close the active document window. Lucid 3-D will prompt you to save any changes before closing the window. Changes made since the last save will be lost.

Print Preview command (File menu)

Use the Print Preview command to switch in and out of Print Preview mode. Print Preview mode allows you to view the printed spreadsheet with all header, footer and other page setup options.

Shortcuts



Related Topics

[Previewing a spreadsheet](#)

Page Setup command (File menu)

Use the Page Setup command to set the appearance of the printed spreadsheet.

Dialog Box Options

Margins	Specify margins in inches for Top, Bottom, Left, Right, Header, and Footer. Headers are measured from the top margin. Footers are measured from the bottom margin.
Center cells	Select Center Cells to horizontally center spreadsheet columns on the printed page.
Paper Size	Select the size of the paper.
Orientation	Select the orientation of the printed page. Portrait prints down the length of the paper, Landscape prints across the width of the paper.
Attributes	Select the attributes to appear on the printed page.
Grid	Select Grid to print the lines separating columns and rows in the spreadsheet.
Fill Page	Select Fill Page to fill empty areas of the page with grid lines.
Notes	Select Notes to print any notes contained in the file. Notes will be printed on separate pages with cell references.
Advanced	Additional page setup options.
Header	Specify the header for the printed page.
Footer	Specify the footer for the printed page.
Preview	Choose Preview to see an on-screen representation of the printed page.
Printer	Choose Printer to set the printer to print to.
Print	Choose Print to print the spreadsheet according to the options you have selected.

Print command (File menu)

Use the Print command to print the active spreadsheet. Use the Page Setup command to set the attributes of the printed page.

Shortcuts



Dialog Box Options

Printer	Shows the currently selected printer.
Print Range	Select the All button to print the entire spreadsheet. Select Selection to print the current selection. Select Pages to print a specific page range.
Print Quality	Select the resolution of the printed page. Lower resolutions print faster.
Copies	Type in the number of copies to print.
Collate Copies	Select to print one full set of pages before printing the next set.
Setup	Display the Print Setup dialog box. (same as Print Setup)

command (File menu))

Related Topics

[Adding headers and footers](#)

[Printing a spreadsheet](#)

Print Setup command (File menu)

Use the Print Setup command to select the printer and options for printing a spreadsheet or graph.

Dialog Box Options

Printer	Select the Default Printer or a specific printer. Only installed printers show in the Specific Printer list. See your Windows documentation on installing printers.
Orientation	Select the orientation of the printed page.
Paper	Select the paper source and paper size.
Options	Displays a dialog box so you can control printer specific settings. Click the Help button in the Options dialog box for help.

Related Topics

[Printing spreadsheets](#)

Connect command (File menu)

Use this command to connect to Palmtop, Handheld or Personal Digital Assistant computers.

Dialog Box Options

Installed Packs	Displays a list of installed Connectivity Packs.
Connect	Connects to the remote computer using the highlight connectivity pack.
Close	Exits the dialog box.
Add	Add a new Connectivity Pack to Lucid 3-D for Windows.
Remove	Remove a Connectivity Pack from Lucid 3-D for Windows.

Related Topics

[Connecting to a palmtop, handheld, or PDA computer](#)

Exit command (File menu)

Use the Exit command to quit Lucid 3-D for Windows. If you have made any changes to open spreadsheets, Lucid 3-D for Windows will suggest that you save the changes for each spreadsheet.

Shortcut

ALT+F4

Graphics menu commands

Draw menu

Graph menu

Draw menu (Graphics menu)

Line

Polyline

Curve

Oval

Rectangle

Rounded Rectangle

Polygon

Filled Curve

Filled Oval

Filled Rectangle

Filled Rounded Rectangle

Filled Polygon

Push Button

Line command (Draw menu)

Use the Line command to draw a straight line on your spreadsheet.

Related Topics

[Creating a floating object](#)

[Deleting a floating object](#)

[Resizing floating objects](#)

Polyline command (Draw menu)

Use the Polyline command to draw a floating object composed of multiple connected lines on the spreadsheet. To draw a freeform line, keep the left mouse button pressed.

Related Topics

[Creating a floating object](#)

[Deleting a floating object](#)

[Resizing floating objects](#)

Curve command (Draw menu)

Use the Curve command to create one fourth of an oval or circle on the spreadsheet.

Related Topics

[Creating a floating object](#)

[Deleting a floating object](#)

[Resizing floating objects](#)

Oval command (Draw menu)

Use the Oval command to create ovals and circles on the spreadsheet.

Related Topics

[Creating a floating object](#)

[Deleting a floating object](#)

[Resizing floating objects](#)

Rectangle command (Draw menu)

Use the Rectangle command to create squares and rectangles on the spreadsheet.

Related Topics

[Creating a floating object](#)

[Deleting a floating object](#)

[Resizing floating objects](#)

Rounded Rectangle command (Draw menu)

Use the Rounded Rectangle command to create rectangles with rounded corners.

Related Topics

[Creating a floating object](#)

[Deleting a floating object](#)

[Resizing floating objects](#)

Polygon command (Draw menu)

Use the Polygon command to create objects with multiple sides. To draw freeform with the Polygon command, hold down the left mouse button while drawing the polygon.

Related Topics

[Creating a floating object](#)

[Deleting a floating object](#)

[Resizing floating objects](#)

Filled Curve command (Draw menu)

Use the Curve command to create one fourth of an oval or circle with the background filled with the background color and pattern on the spreadsheet.

Related Topics

[Creating a floating object](#)

[Deleting a floating object](#)

[Resizing floating objects](#)

Filled Oval command (Draw menu)

Use the Oval command to create ovals and circles with the background filled with the background color and pattern.

Related Topics

[Creating a floating object](#)

[Deleting a floating object](#)

[Resizing floating objects](#)

Filled Rectangle command (Draw menu)

Use the Rectangle command to create squares and rectangles with the background filled with the background color and pattern on the spreadsheet.

Related Topics

[Creating a floating object](#)

[Deleting a floating object](#)

[Resizing floating objects](#)

Filled Rounded Rectangle command (Draw menu)

Use the Rounded Rectangle command to create rectangles (rounded corners) with the background filled with the background color and pattern on the spreadsheet.

Related Topics

[Creating a floating object](#)

[Deleting a floating object](#)

[Resizing floating objects](#)

Filled Polygon command (Draw menu)

Use the Polygon command to create objects with multiple sides with the background filled with the background color and pattern. To draw freeform with the Polygon command, hold down the left mouse button while drawing the polygon.

Related Topics

[Creating a floating object](#)

[Deleting a floating object](#)

[Resizing floating objects](#)

Push Button command (Draw menu)

Use the Push Button command to create a rectangular object that resembles a button. You can assign macros to a push button.

Related Topics

[Assigning macros to push buttons](#)

[Creating a pushbutton](#)

[Deleting a push button](#)

Graph menu (Graphics menu)

Create

Edit

Create command (Graph menu)

Use the Create command to create an embedded graph in the spreadsheet.

Dialog Box Options

Graph Type	Select a graph from the 12 supported graph types
Embedded	Select Embedded to create an embedded graph in the spreadsheet.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

Edit command (Graph menu)

Use the Edit command to modify the currently selected floating (embedded) graph. The Edit command will place the graph in a graph window where you can edit it.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

Help menu commands

[Contents](#)

[Search](#)

[Functions](#)

[Product Support](#)

[About Lucid 3-D for Windows](#)

Contents command (Help menu)

Use this command to display the Lucid 3-D for Windows Help table of contents. To select a topic from the table of contents, click the name of the topic. You can also press the tab key to move to the topic and press ENTER.

If you need help using the Help system, use the Help on Help command.

Search command (Help menu)

Use the Search command to search Help topics by typing or selecting available keywords.

Dialog Box Options

Keyword	Select a keyword from the list, or type a keyword in.
Topics	Select a topic from the list and choose Goto.

Functions command (Help menu)

Use the Functions command to display the Functions help topic.

Related Topics

[Functions](#)

Product Support command (Help menu)

Use the Product Support command for viewing details on contacting Lucid Corporation.

About Lucid 3-D for Windows (Help menu)

Use the About Lucid 3-D for Windows command to display information about this version of Lucid 3-D for Windows.

Macro menu commands

Create

Stop

Play

Edit

If

Else

Endif

Create command (Macro menu)

Use the Create command to record a new macro or overwrite an existing macro.

Dialog Box Options

- | | |
|---------|---|
| Name | Type in a name or select one from the Macro list. |
| Record | Choose this button to begin recording the macro. |
| Options | Choose this button to set macro options. |

Related Topics

[Recording a macro](#)

[Running a macro](#)

Stop command (Macro menu)

Use the Stop command to stop the recording of a macro. This command is unavailable unless you are recording a macro.

Related Topics

[Recording a macro](#)

[Running a macro](#)

Play command (Macro menu)

Use the Play command to play a macro. You must first record the macro use the Record command (Macro menu).

Dialog Box Options

- Macro List Select the macro to play from the list.
- Play Choose Play to run the macro.

Edit command (Macro menu)

Use the Edit command to trace through the steps of a macro.

Dialog Box Options

- Trace Select to step through the execution of a
- Execution macro.

If command (Macro menu)

Inserts an IF statement in the currently recording macro.

Else command (Macro menu)

Inserts an ELSE statement in the currently recording macro.

Endif command (Macro menu)

Inserts an END statement in the currently recording macro.

Range menu commands

Format menu

Size

Name

Insert

Delete

Sort

Transpose

Format menu (Range menu)

Font

Alignment

Border

Pattern

Numeric

Font command (Format menu)

Use the Font command to change the font, style and color of the text in the current selection.

Shortcuts



CTRL+T

Cell right-click menu

Dialog Box Options

Font	Select the name of the font you want to use or type the font name.
Font Style	Select a style for the font.
Size	Select a size for the font or type in a new size.
Strikeout	Select Strikeout if you want lines to appear through the font.
Underline	Select Underline if you want the font underlined.
Sample	Shows a sample of the text using the currently selected options.

Alignment command (Format menu)

Use the Alignment command to control the way text and values are positioned in the current selection.

Shortcuts



CTRL+A

Cell right-click menu

Dialog Box Options

Top	Align the cell entries on the top of the cell.
Middle	Align the cell entries in the middle of the cell.
Bottom	Align the cell entries on the bottom of the cell.
Left	Align the cell entries to the left of the cell.
Center	Align the cell entries in the middle of the cell.
Right	Align the cell entries to the right of the cell.
General	Restore the defaults of left alignment of text and right alignment of values.

Border command (Format menu)

Use the Border command to add lines that outline a cell or a range of cells. You can use this command to highlight specific information in your spreadsheet, or give visual organization to information. The Border command is also available from the cell right-click menu.

Shortcuts



CTRL+B

Dialog Box Options

Outline	Puts a border around the selection.
Top	Puts a horizontal line on the top of the selection.
Left	Puts a vertical line on the left side of the selection.
Bottom	Puts a horizontal line on the bottom of the selection.
Right	Puts a vertical line on the right side of the selection.

Pattern command (Format menu)

Use the Pattern command to set colors and patterns for the current selection.

Shortcuts



CTRL+R

Cell right-click menu

Dialog Box Options

Background	Set the background color for the current selection.
Pattern	Set the fill color for the style Selection.
Style	Set the fill pattern for the selection.

Numeric command (Format menu)

Use the Numeric command to control the display of values in the current selection. You can use a predefined format or create a new format.

Shortcuts



CTRL+N

Dialog Box Options

Formats	Lists all the formats available.
Custom	Allows you to customize the entry.
Add	Add a format to the Formats list.
Remove	Remove the selected entry from the Formats list.

Size command (Range menu)

Use the Size command to change column and row size for the selected range. You can size a selection by pixel, inches or centimeters.

Dialog Box Options

Height	Apply the size to the height of the selection.
Width	Apply the size to the width of the selection.
Pixels	Set the size in pixel amounts.
Inches	Set the size in inch.

Centimeters

Set the size in centimeters.

Name command (Range menu)

Use the Name command to assign a name to a cell or range of cells. Range names can replace cell references in functions and formulas.

You can use descriptive names, like "Sales" or "Total", names that pertain to your business like "Southwest" or "Main Office", or even long names like "Total Sales of Spare Parts".

Once you assign a name to a range of cells, you can use that name in formulas instead of cell references. For example, you could use SUM(Eastern Region Sales) instead of SUM(C3:C15).

Shortcuts



Dialog Box Options

Name	Type in a name for the selected range.
Range	The range to apply the name to.
Named Ranges	List of currently named ranges.

Insert command (Range menu)

Use the Insert command to insert a row, column or layer the size of the selected range. The selected range is shifted to accommodate the inserted cells.

Shortcuts



Dialog Box Options

Insert	Select the items to insert.
Partial	Inserts only the current selection
Entire	Inserts the entire row, column, or layer if selected.
Contents	Shift the contents of cells to fill the space left by the insertion.
Formats	Shift the cell formats of cells to fill the space left by the insertion.

Delete command (Range menu)

Use the Delete command to remove the selection from the spreadsheet. Cells surrounding the selection fill in the space left by the deletion. If you delete entire rows or columns, rows or columns fill the space left by the deletion.

Shortcuts



Dialog Box Options

Delete	Select the items to deletes.
Partial	Deletes only the current selection

Entire	Deletes the entire row, column, or layer if selected.
Contents	Shift the contents of cells to fill the space left by the deletion.
Formats	Shift the cell formats of cells to fill the space left by the deletion.

Sort command (Range menu)

Use the Sort command to rearrange spreadsheet entries into a specific order, either ascending or descending.

Dialog Box Options

Range	The range to sort.
Ignore Case	Ignore case sensitivity when sorting the selection.
by Layers	Sort each layer in the range, keeping layers intact.
by Rows	Sort each row in the range, keeping the rows intact.
by Columns	Sort each column in the range, keeping the columns intact.
1st	The first row, column, or layer to arrange by. Select Ascending to sort the selection from lowest value to highest value.
2nd	The second row, column, or layer to arrange by. Select Ascending to sort the selection from lowest value to highest value.
3rd	The third row, column, or layer to arrange by. Select Ascending to sort the selection from lowest value to highest value.

Transpose command (Range menu)

Use the Transpose command to reorder rows, columns, and layers so cells in one dimension are moved to another dimension. Transposing rows and columns makes row become columns and columns become rows. When transposing layers, rows, and columns, layers become rows, rows become columns, and columns become layers. By combining the Transpose and Reverse option together you can rotate ranges.

Shortcuts



Dialog Box Options

Range	The range to transpose
Transpose	Select the transpose options
Reverse	Create a mirror image of the selected dimension. For example, select Rows to make the rows at the top of the range appear at the bottom of the range. If you have selected both a transpose and reverse operation, Lucid 3-D will perform the transpose first.

Style menu commands

2-D Pie

3-D Pie

2-D Bar

3-D Bar

2-D Area

3-D Area

2-D Line

3-D Line

Gantt

Polar

Hi-Lo Close

Scatter X-Y

2-D Pie (Style menu)

Use the 2-D Pie command to create a two-dimensional pie chart. Pie charts are useful for plotting a single series of data, each element representing a percentage of the whole. The size of each pie slice is the approximate percentage each value contributes to the total value.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

3-D Pie (Style menu)

Use the 3-D Pie command to create a three-dimensional pie chart. Pie charts are useful for plotting a single series of data, each element representing a percentage of the whole. The size of each pie slice is the approximate percentage each value contributes to the total value.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

2-D Bar (Style menu)

Use the 2-D Bar command to create a two-dimensional bar chart. Bar charts are useful for comparing a series of values during a related period of time.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

3-D Bar (Style menu)

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Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

2-D Area (Style menu)

Use the 2-D Area command to create a two-dimension area chart. Area charts are variations of the line graph in which each value is shown as a contribution of the total value.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

3-D Area (Style menu)

Use the 3-D Area command to create a three-dimension area chart. Area charts are variations of the line graph in which each value is shown as a contribution of the total value.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

2-D Line (Style menu)

Use the 2-D Line command to create a two-dimensional line graph. Line graphs are useful for plotting changes in value over a period of time. Each line of the graph represents one value changing over time.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

3-D Line (Style menu)

Use the 3-D Line command to create a three-dimensional line graph. Line graphs are useful for plotting changes in value over a period of time. Each line of the graph represents one value changing over time.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

Gantt (Style menu)

Use the Gantt command to create a Gantt graph. Gantt graphs are useful for plotting project schedules. The first value in each column is the offset, or the point where the data in that column begins. The remaining numbers in the column make up the time values in the graph.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

Polar (Style menu)

Use the Polar graph command to create a polar graph. A polar graph plots values around a polar axis. Each value is plotted in 30 degree increments and represents each row in the range by a line color.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

Hi-Lo Close (Style menu)

Use the Hi-Lo Close command to create a Hi-Lo Close graph. Hi-Lo Close graphs are useful for tracking changes in values over a period of time. The graph will plot the high, low, and closing point for each series of values. Each series is a column of three rows representing the high, low and closing point for the series.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

Scatter XY (Style menu)

Use the Scatter XY command to create a Scatter XY chart. Scatter XY charts are useful for showing correlations between different types of values. The graph is plotted using two pairs of rows at a time. In each pair of rows, the first row represents the X coordinate and the second row represents the Y coordinate.

Related Topics

[Adding axes grids to graphs](#)

[Adding graph titles](#)

[Changing colors and patterns in a graph](#)

[Changing graph fonts](#)

[Changing graph types](#)

[Creating a graph](#)

[Printing a graph](#)

Tools menu commands

Audit

Button Bars

Name Layers

Global Preferences

Sheet Preferences

Functions

Audit command (Tools menu)

Use the Audit command to display lists of various characteristics about the current spreadsheet. The Dependents and Sources options list information for a single cell only. If you don't supply a cell address in Cell Reference, dependents and sources for the current cell location will be used.

Dialog Box Options

Notes	Displays a list of notes contained in the spreadsheet.
Unreferenced	Displays a list of cells containing values not used by any formula. Lucid 3-D omits cells that appear in formulas as cell references, or as part of a range that a function uses.
Formulas	Displays a list of cells in the spreadsheet that contain formulas.
File Links	Displays a list of cells containing the REF function.
Dependents	Displays a list of cells whose values are dependent on other cells.
Sources	Displays a list of cells on which the current cell value depends on.
Cell Reference	Enter a cell address

Button Bars command (Tools menu)

Use the Button Bars command to create a window containing the Button Bar's buttons. When you create a Button Bar window, you can have quick access to commands contained in the Button Bar.

Dialog Box Options

Available Button Bars	Select the Button Bar you want to be in a moveable window.
-----------------------	--

Name Layers command (Tools menu)

Use the Name Layers command to name spreadsheet layers. You can name each layer with up to 255 characters. The color of the tab may also be set.

Dialog Box Options

Change Selection to	Select the layer name to change and type in a new name.
Color	Select a new color for the tab selected in Change Selection to.

Global Preferences command (Tools menu)

Use the Global Preferences command to configure Lucid 3-D for Windows. Some options affect new spreadsheets, others affect every spreadsheet open.

Dialog Box Options

Layers	Set the default number of layers for new spreadsheets.
Rows	Set the default number of rows for new spreadsheets.
Columns	Set the default number of columns for new spreadsheets.
Sheet Preferences	Set spreadsheet preferences for new spreadsheets.
Main Button Bar	Toggle the main Button Bar on and off.
Undo Available	Toggle the Undo feature. When selected you can undo most operations or commands using the Undo command (Edit menu).
Recalculation	Select manual or automatic spreadsheet calculation. When automatic is selected, the spreadsheet is recalculated every time you make an entry.
Iterations	Sets the number of successive calculations Lucid 3-D will perform during calculations. You can set the number of recalculations between 1 and 100.
Moving Enter	Sets the action of the widebar when you press ENTER to enter data into a cell. You can also set the movement (down, up, left, or right) and the distance the widebar travels.

Sheet Preferences command (Tools menu)

Use the Sheet Preferences command to configure settings in the current spreadsheet. To configure setting that affect all spreadsheets, see the Global Preferences help topic.

Dialog Box Options

Notes	Displays the first line of any notes in the spreadsheet.
Formulas	Displays the formulas used to calculate the results that normally display in the cells.
Grid	Displays vertical and horizontal lines that distinguish the cell boundaries in the spreadsheet.
Layer References	Displays the layer reference as part of cell references on the cell edit line.
Row Labels	Displays row labels (1,2,..) down the right side of the spreadsheet window.
Column Labels	Displays column labels (A,B,C..) across the top of the spreadsheet window.
Tabs	Displays the layer tabs (A,B,C,...) above the column labels.
Color Tabs	Displays tabs in color.
Auto Recalc	Recalculates the spreadsheet each time you enter a cell entry or press F9. When unchecked, the spreadsheet will only recalculate when you press F9.
Font	Sets the default font for the spreadsheet
Size	Sets the default column width and range height for the

Alignment	spreadsheet. Sets the default justification for the spreadsheet.
Numeric	Sets the default numeric format for the spreadsheet.

Functions command (Tools menu)

Use the Functions command to paste a Lucid 3-D built-in function into the cell editor. Choose the function from the Available Functions list.

Shortcuts:



Dialog Box Options

Available Functions	Select the function to insert or replace.
Insert	Insert the selected function on the cell editor line.
Replace	Replace the function on the cell editor line with the selected function.

Window menu commands

Cascade

Tile

Arrange Icons

Close All

Hide

Unhide

Titles

Cascade command (Windows menu)

Use the Cascade command to arrange document all open windows in overlapping layers with their title bars showing.

Tile command (Windows menu)

Use the Tile command to arrange open windows without overlapping the windows. When possible each window is given equal room.

Arrange Icons command (Windows menu)

Use the Arrange Icons to arrange spreadsheet icons in neat vertical and horizontal rows.

Close All command (Windows menu)

Use the Close All command to close all spreadsheet windows. Lucid 3-D prompts you to save any changes you have made.

Related Topics

[Closing the active window](#)

Hide command (Windows menu)

Use the Hide command to prevent a window from being displayed on the screen. The spreadsheet is still open, but is prevented from being shown in window list boxes. Use the Unhide command (Windows menu) to display the window.

Related Topics

[Hiding and un hiding windows](#)

Unhide command (Windows menu)

Use the Unhide command to make hidden spreadsheet windows visible.

Dialog Box Options

Hidden Windows

Select the window to unhide from the list of hidden windows.

Show

Choose the Show button to make the selected window visible.

Close

Exit the dialog box.

Related Topics

[Hiding and un hiding windows](#)

Titles command (Windows menu)

Use the Titles command to lock specific rows and columns on the spreadsheet as titles. When you scroll the spreadsheet windows, the row and column titles will remain fixed and visible.

List of Windows (Windows menu)

Lucid 3-D displays a list of currently opened spreadsheet windows at the bottom of the Windows menu.

When you choose an open window, you make that spreadsheet active. A check mark appears before the active spreadsheet.

More (Windows menu)

When more windows are open than can be displayed on the List of Windows, the More command will appear on the Windows menu. When you choose an open window from the list, you make that spreadsheet active. The spreadsheet window is moved to the List of Windows and a check mark is placed before it.

Delete (Edit menu - graph system)

Use the Delete command to delete the active graph.

Refresh (Edit menu - graph system)

Use the Refresh command to recalculate graph values.

Font (Format menu - graph system)

Use the Font command to change the font options for graph elements. You can set the font for titles, axis titles, labels, and legends. You have three font choices, small, medium, and large.

Dialog Box Options

Font Style	Select the font style for each of the listed graph elements.
Font Size	Select the font size for each of the listed graph elements.

Graph Elements (Format menu - graph system)

Use the Graph Elements command to control how the graph appears. You can control the appearance of labels and legends, x and y grids.

Dialog Box Options

Transpose Rows and Columns	Select this option to switch row and column data along with their labels. The default is to group row data together for each value. By selecting this option, you can group column data together for each value.
Display X Grid	Display vertical lines representing points on the X axis.
Display Y Grid	Display horizontal lines representing points on the Y axis.
Display Labels	Display data labels in the graph.
Display Legends	Display legends in the graph.

Set Titles (Format menu - graph system)

Use the Set Titles command (Format menu - graph system) to add or modify titles on your graph.

Dialog Box Options

Graph Title	Type in text for the title of the graph. This text appears at the top of the graph.
X Axis Title	Type in text for the X Axis title of the graph. This text appears at the bottom of the X axis.
Y Axis Title	Type in text for the Y Axis title of the graph. This text appears to the left of the Y Axis.

Cell right-click menu

Cut

Copy

Paste

Paste Special

Delete

Font

Align

Border

Pattern

Numeric

Auto Function

Auto Function (Cell right-click menu)

AVG (Auto function menu)

MAX (Auto function menu)

MIN (Auto function menu)

NULL (Auto function menu)

PRODUCT (Auto function menu)

STD (Auto function menu)

STDS (Auto function menu)

SUM (Auto function menu)

AVG (Auto Function menu)

Use AVG command (Auto Function menu) to insert the AVG function for the selected range.

To insert the function

1. Select the range.
2. Click the right mouse button.
3. Choose the Auto Function menu.
4. Select AVG from the Auto Function menu.
5. Point to the cell to insert the function and click the left mouse button.

MAX (Auto Function menu)

Use MAX command (Auto Function menu) to insert the MAX function for the selected range.

To insert the function

1. Select the range.
2. Click the right mouse button.
3. Choose the Auto Function menu.
4. Select MAX from the Auto Function menu.
5. Point to the cell to insert the function and click the left mouse button.

MIN (Auto Function menu)

Use MIN command (Auto Function menu) to insert the MIN function for the selected range.

To insert the function

1. Select the range.
2. Click the right mouse button.
3. Choose the Auto Function menu.
4. Select MIN from the Auto Function menu.
5. Point to the cell to insert the function and click the left mouse button.

NULL (Auto Function menu)

Use NULL command (Auto Function menu) to insert the NULL function for the selected range.

To insert the function

1. Select the range.
2. Click the right mouse button.
3. Choose the Auto Function menu.
4. Select NULL from the Auto Function menu.
5. Point to the cell to insert the function and click the left mouse button.

PRODUCT (Auto Function menu)

Use PRODUCT command (Auto Function menu) to insert the PRODUCT function for the selected range.

To insert the function

1. Select the range.
2. Click the right mouse button.
3. Choose the Auto Function menu.
4. Select PRODUCT from the Auto Function menu.
5. Point to the cell to insert the function and click the left mouse button.

STD (Auto Function menu)

Use STD command (Auto Function menu) to insert the STD function for the selected range.

To insert the function

1. Select the range.
2. Click the right mouse button.
3. Choose the Auto Function menu.
4. Select STD from the Auto Function menu.
5. Point to the cell to insert the function and click the left mouse button.

STDS (Auto Function menu)

Use STDS command (Auto Function menu) to insert the STDS function for the selected range.

To insert the function

1. Select the range.
2. Click the right mouse button.
3. Choose the Auto Function menu.
4. Select STDS from the Auto Function menu.
5. Point to the cell to insert the function and click the left mouse button.

SUM (Auto Function menu)

Use SUM command (Auto Function menu) to insert the SUM function for the selected range.

To insert the function

1. Select the range.
2. Click the right mouse button.
3. Choose the Auto Function menu.
4. Select SUM from the Auto Function menu.
5. Point to the cell to insert the function and click the left mouse button.

Floating Object right-click menu

Cut

Copy

Paste

Delete

Text

Shadow

Fill

Font

Text Alignment

Color

Border

Drop Shadow Offset

Push Button right-click menu

Cut

Copy

Paste

Delete

Font

Highlight Color

Face Color

Shaded Color

Border Color

Display Text

Text Alignment

Assign Macro

Shadow

Drop Shadow Offset

Cut command (Object right-click menu)

Use the Cut command place the currently selected object into the clipboard. You can use the Paste command to place the object on the spreadsheet.

Copy command (Object right-click menu)

Use the Copy command to place the currently selected object into the clipboard. You can use the Paste command to place the object on the spreadsheet.

Paste command (Object right-click menu)

Use the Paste command to place the contents of the clipboard at the current selection.

Text command (Object right-click menu)

Use the Text command to toggle the display of text you add to an object. When a checkmark precedes this command, any text you added to a floating object will be displayed.

Shadow command (Object right-click menu)

Use the Shadow command to toggle the display of the object's shadow. When a checkmark precedes this command, a shadow will be added to the floating object. This will give the floating object a three-dimensional effect.

Fill command (Object right-click menu)

Use the Fill command to toggle the display of a solid fill of the floating object. When a checkmark precedes this command, the object will appear solid. When the Fill command is not selected (no preceding checkmark), the data in the cells under the floating object will appear through the floating object.

Font command (Object right-click menu)

Use the Font command to change the font, style and color of the text in the current selection.

Dialog Box Options

Font	Select the name of the font you want to use or type the font name.
Font Style	Select a style for the font.
Size	Select a size for the font or type in a new size.
Strikeout	Select Strikeout if you want lines to appear through the font.
Underline	Select Underline if you want the font underlined.
Sample	Shows a sample of the text using the currently selected options.

Text Alignment command (Object right-click menu)

Use the Text Alignment command to position the text of a floating object. You can position the text vertically and horizontally.

Dialog Box Options

Vertical	Select the vertical alignment of the text within the floating object.
Horizontal	Select the horizontal alignment of the text within the floating object.

Color (Floating object right-click menu)

Use the Color command to change the background color of a floating object.

Dialog Box Options

Basic Colors	Select the basic color of the background.
Custom Colors	Select the custom color of the background.
Define Custom Colors	Choose this option to create a new custom color.

Border (Object right-click menu)

Use the Border command to add or change the border of the floating object. You can choose the style and color of the border.

Dialog Box Options

Style	Select the style from the available choices.
Line	Select the color of the solid portion of the border.
Background	Select the color of the fill for border styles that contain dashes or dots.

Highlight Color (Push Button right-click menu)

Use the Highlight Color command to change the highlight color of a push button.

Dialog Box Options

Basic Colors	Select the basic color of the highlight.
Custom Colors	Select the custom color of the highlight.
Define Custom Colors	Choose this option to create a new custom color.

Face Color (Push Button right-click menu)

Use the Face Color command to change the face color of a push button.

Dialog Box Options

Basic Colors	Select the basic color of the face.
Custom Colors	Select the custom color of the face.
Define Custom Colors	Choose this option to create a new custom color.

Shaded Color (Push Button right-click menu)

Use the Shaded Color command to change the shaded color of a push button.

Dialog Box Options

Basic Colors	Select the basic color of the shade.
Custom Colors	Select the custom color of the shade.
Define Custom Colors	Choose this option to create a new custom color.

Border Color (Push Button right-click menu)

Use the Border Color command to select the border and its attributes of a floating object or push button.

Dialog Box Options

Style	Select the line style of the border.
Line	Select the color of the solid portion of the border.
Background	Select the color of the background fill of the border.

Display Text (Push Button right-click menu)

Use the Text command to toggle the display of text you add to a floating object. When a checkmark

precedes this command, any text you added to a floating object will be displayed.

Text Alignment (Push Button right-click menu)

Use the Text Alignment command to position the text of a push button. You can position the text vertically and horizontally.

Dialog Box Options

- Vertical Select the vertical alignment of the text within the push button.
- Horizontal Select the horizontal alignment of the text within the push button.

Assign Macro (Push Button right-click menu)

Use the Assign Macro command to assign a pre-recorded macro to a push button. After assigning a macro to a push button, you can play the macro by clicking the push button.

Dialog Box Options

- Macro List Select the macro from the list of available macro commands.

Shadow (Push Button right-click menu)

Use the Shadow command to toggle the display of the push button's (floating object's) shadow. When a checkmark precedes this command, a shadow will be added to the push button. This will give the push button a three-dimensional effect.

Drop Shadow Offset (Push Button right-click menu)

Use the Drop Shadow Offset command to position the shadow of a push button or floating object. The number is in a percentage drop from the object.

Dialog Box Options

- | | |
|------------|---|
| Vertical | Select left/right offset from the object. |
| Horizontal | Select up/down offset from the object. |

CASIO Unit Connectivity Setup

Use the Setup dialog to configure communications with your CASIO unit.

Dialog Box Options

- | | |
|---------------------|--|
| Communications Port | Select the communications port for the connection. |
| Baud Rate | Select the baud rate for the connection. The baud rate must be identical on both computers. |
| Parity | Select the parity setting for the connection. The parity must be the same on both computers. |
| Bit length | Select the bit length for the connection. Lucid 3-D reverts to 8-bits regardless since Lucid 3-D spreadsheets contain binary (8-bit) data. The Bit length must be identical on both computers. |
| Machine Type | Select the CASIO machine type for the connection. |
| Default | Choose the Default button to restore the Baud, Parity, and Bit Length settings. |

Connectivity Packs

Use the Connectivity Packs dialog box to add, remove, or connect to palmtop, handheld and PDA computers.

Dialog Box Options

- | | |
|-----------------|---|
| Installed Packs | Choose the connectivity pack to connect or remove. You don't need to select a pack if you are installing a Connectivity Pack. |
| Connect | Choose Connect to the currently selected Connectivity Pack. |
| Close | Close the Connectivity Packs Dialog Box. |
| Add | Choose Add to install a new connectivity pack. |
| Remove | Choose Remove to remove the currently selected Connectivity Pack. |

Advanced Page Setup

Use the Advanced Page Setup dialog box to set properties of the printed page.

Dialog Box Options

Borders	Select the borders for cells.
Border Style	Select the style of the border line.
Grid Lines	Select the grid for the cells.
Grid Style	Select the style of the grid lines.
Facing Pages	Select this option when you want to print double-sided pages.
First Page	Select the position of the first printed page of the facing pages.
Cell Contents	Select Results to print the result of a formula, select Formula to show the actual formula for the cell.
Gutter Margin	Specifies the distance to add to the left margin to pages when Facing Pages is selected.
Floating Objects	Select this option to print Floating Objects on the page.

Function Packs

Lucid 3-D for Windows has the ability to add additional built-in functions. The Function Packs dialog box allows you to install these Function Packs.

Dialog Box Options

Installed Packs	Select the Function Pack from the list for the remove choice.
Add	Add new Function Packs to Lucid 3-D for Windows.
Remove	Remove the selected Function Pack.

Replace?

Lucid 3-D for Windows is asking you for confirmation on a replace operation.

Dialog Box Options

Replace	Replace this instance of the text and continue searching.
Replace All	Replace this and all other occurrences. Occurrences skipped previously will not be replaced.
Skip	Skip this occurrence and continue searching.
Cancel	Cancel the Find/Replace command.

Scroll to Layer

Use this button to go to a specific layer of the spreadsheet. The layer selected is not activated, only the tabs are scrolled. To activate the layer, click on its tab.

Dialog Box Options

Scroll to Layer	Select the layer to scroll to.
Set Layer As	Select Left-most to make the layer the left most tab or Right-most to make the layer the right most tab.

Sending....

Lucid 3-D for Windows displays this dialog box during transfers to the Casio unit.

Receiving...

Lucid 3-D for Windows displays this dialog during transfers to the Casio unit.

Add Connectivity Pack

Use the Add Connectivity Pack command to install new Connectivity Packs to Lucid 3-D for Windows.

Dialog Box Options

File Name	Type the file name and extension of the Connectivity Pack to add.
List Files of Type	Displays a list of available file types. When you select a file type, the File Name list reflects that selection.
Directories	Displays a list of available directories. When you select a directory, the File Name list reflects that selection.
Drives	Displays a list of available drives. When you select a drive, the Directories and File Name lists reflect that selection.

Add Function Pack

Use the Add Function Pack command to install new Function Pack to Lucid 3-D for Windows.

Dialog Box Options

File Name	Type the file name and extension of the function pack to add.
List Files of Type	Displays a list of available file types. When you select a file type, the File Name list reflects that selection.
Directories	Displays a list of available directories. When you select a directory, the File Name list reflects that selection.
Drives	Displays a list of available drives. When you select a drive, the Directories and File Name lists reflect that selection.

Scroll layer tabs one window right

Use this button to scroll the layer tabs one full window to the right.

Scroll to the left most layer tab

Use this button to scroll the layer tabs to the left most layer.

Scroll to the right most layer tab

Use this button to scroll the layer tabs to the right most layer.

Scroll layer tabs one window left

Use this button to scroll the layer tabs one full window to the left.

Edit Buttons

Click on this button to display the Edit button bar.

Range Buttons

Click on this button to display the Range button bar. You can use these buttons to quickly perform range operations on the currently selected range.

Draw Buttons

Click on this button to display the Draw button bar. You can use these buttons to quickly draw floating objects (including push buttons) on your spreadsheet.

Embedded Graph Buttons

Click on this button to display the Embedded Graph button bar. You can use these buttons to quickly place embedded graphs on your spreadsheet.

Spreadsheet Sizing Button

Click on this button to create a new spreadsheet with a specified number of rows, columns and layers

Dialog Box Options

Layers	Specify the number of layers between 1 and 32000.
Rows	Specify the number of rows between 1 and 32000.
Columns	Specify the number of columns between 1 and 32000.

3D Up Button

Click this button to traverse up one spreadsheet layer. For example, if you are on layer B and click the 3D Up Button, Lucid 3-D will move the widebar to the same row and column position on layer A.

3D Down Button

Click this button to traverse down one spreadsheet layer. For example, if you are on layer A and click on the 3D Down Button, Lucid 3-D will move the widebar to the same row and column on layer B.

Casio Main Dialog Box

Dialog Box Options

- | | |
|---------|---|
| Close | Choose the Close button to end the session. |
| Send | Choose the Send button to send a file to the Casio unit. |
| Receive | Choose the Receive button to receive a file from the Casio unit. |
| Setup | Choose the Setup button to configure the communication to the Casio unit. |

Macro Options

The Macro Options dialog box allows you to modify the way cell references are treated when macros are recorded.

Dialog Box Options

Absolute Rows	Select this option to always refer to the same row in cell references.
Absolute Columns	Select this option to always refer to the same column in cell references
Absolute Layers	Select this option to always refer to the same layer in cell references.

Function Packs

The Function Packs dialog box allows you to add Function Packs to Lucid 3-D for Windows.

Dialog Box Options

Installed Packs	List of Function Packs installed.
Add	Choose this button to add a Function Pack.
Remove	Choose this button to remove the Function Pack highlighted in the Installed Packs list.

Top Bar

Click on this button to display the main Button Bar.

Left Justification Button

Click this button to left-justify the currently selected cell or range.

Right Justification Button

Click this button to right-justify the currently selected cell or range.

Center Justification Button

Click this button to center-justify the currently selected cell or range.

Bold Button

Click on this button to select or clear bold formatting on the currently selected cell or range.

Italic Button

Click on this button to select or clear italic formatting to the currently selected cell or range.

Font Grow Button

Click on this button to increase the size of the currently selected cell or range font.

Font Shrink Button

Click this button to decrease the size of the currently selected cell or range font.

Audit Notes

Audit Notes displays a list of notes in the active spreadsheet. Select a cell from the list and choose OK to move to the cell.

Audit Unreferenced

Audit Unreferenced displays a list of unreferenced cells in the active spreadsheet. An unreferenced cell is a value which is not used in any formula in the spreadsheet. Select a cell from the list and choose OK to move to the cell.

Audit Formulas

Audit Formulas displays a list of formulas used in the active spreadsheet. Select a cell from the list and choose OK to move to the cell.

Audit 3D

Audit 3D displays a list of file links used in the active spreadsheet. Select a cell from the list and choose OK to move to the cell.

Audit Dependents

Audit Dependents displays a list of cells whose values are dependent on other cells. Select a cell from the list and choose OK to move to the cell.

Audit Sources

Audit Sources displays a list of cells on which the current cell value depends on. Select a cell from the list and choose OK to move to the cell.

Functions

ABS

ACOS

ACOSH

AND

ASIN

ASINH

ATAN

ATAN2

ATANH

AVG

CEILING

CELL

CELLOF

CHAR\$

CHOOSE

CLEAN\$

CLEANHI\$

CLEANLO\$

CODE

COL

COLS

CONCAT\$

COS

COSH

COUNT

COUNTA

CTERM

DATE

DATEVALUE

DATE\$

DAY

DAYOFWEEK

DAYOFWEEK\$

DAYS

DAYS360

DAY\$

DDB

DEGREES

DLOOKUP

DOLLAR\$

ERR

EXACT

EXP

FACT

FALSE

FILEEXISTS

FIND

FIXED\$

FLOOR

FV

HEX

HEX\$

HLOOKUP

HOUR

HOURS

HYPOT

IF

INDEX

INDEXR

INT

IPMT

IRR

ISBLANK

ISERR

ISERROR

ISLABEL

ISLOGICAL

ISNA

ISNONNUMBER

ISNONSTRING

ISNUMBER

ISRANGE

ISSTRING
JULIAN
JULIANDAY
LAYER
LAYERS
LEFT\$
LENGTH
LN
LOG
LOOKUP
LOTTO\$
LOWERS\$
MAX
MEDIAN
MID\$
MIN
MINUTE
MINUTES
MIRR
MOD
MONTH
MONTHS30
MONTH\$
N
NA
NOT
NOW
NPV
NULL
NUMBER\$
OFFSET
OR
PI
PMT
POWER
PPMT
PRODUCT

PROPER\$
PV
RADIANS
RAND
RANDOM
RANDOMIZE
RANGE
RANGEOF
RATE
REF
REPEAT\$
REPLACE\$
RIGHT\$
ROUND
ROW
ROWS
S
SEARCH
SECOND
SECONDS
SIGN
SIN
SINH
SLN
SQRT
STD
STDS
SUBST\$ SUBST\$
SUM
SUMPRODUCT
SYD
TAN
TANH
3DLOOKUP
TERM
TIME
TIMES\$

TIMEVALUE

TODAY

TRIM\$

TRUE

TRUNC

TYPE

UPPER\$

VALUE

VAR

VAR\$

VERSION

VERSION\$

VLOOKUP

XOR

YEAR

YEAR\$

ABS

ABS(X)

X = a numeric value

ABS returns the absolute value of the expression. The absolute value of any number is the positive value of the number regardless of its sign. ABS(-5) returns 5.

Examples:

ABS(-9) = 9

ABS(A1-3)

ABS(A3-A2)

ACOS

ACOS(X)

X = a numeric value between -1 and 1

ACOS returns the inverse cosine or arccosine of X . The result represents the angle (in radians) whose cosine equals X . The value X cannot be less than -1 or greater than 1.

Lucid 3-D includes the radians() and degrees() functions to convert between the two angle measurements.

Examples:

$$\text{ACOS}(1/2) = 1.05$$

$$\text{ACOS}(A4)$$

$$\text{ACOS}(A3+A2)$$

ACOSH

ACOSH(X)

X = a numeric value greater than 1

ACOSH returns the inverse hyperbolic cosine, or the hyperbolic arccosine. The result represents the angle (in radians) whose hyperbolic cosine equals X .

Lucid 3-D includes the radians() and degrees() functions to convert between the two angle measurements.

Examples:

ACOSH(1.5) = .96

ACOSH(A1)

AND

AND(*comparison expressions*)

comparison expressions = one or more comparison expressions, separated by commas, that evaluate to TRUE or FALSE

AND evaluates the expressions in *comparison expressions*, and returns TRUE if all the expressions evaluate to TRUE. AND returns FALSE if at least one of the comparison expressions evaluate to FALSE.

Although Lucid 3-D allows you to enter an AND function into a cell, it is most useful in an IF statement to determine if two or more conditions are true. The following statement compares the contents of two cells and displays a message based on the result of the compare:

```
IF(AND(A::A1<B::A1,B::A1>C::A1),CONCAT$("Higher Sales!"),CONCAT$("High Sales!"))
```

if the contents of the cell B::A1 contains a larger value than the contents of cell A::A1, and it also contains a larger value than cell C::A1, this formula prints "Higher Sales". If either cell C::A1 or cell A::A1 contain larger values than cell B::A1, this formula displays "High Sales".

Examples:

```
AND(TRUE(),TRUE()) = 0.00 (TRUE)
```

```
AND(A1,A2)
```

ASIN

ASIN(X)

X = a numeric value between -1 and 1

ASIN returns the arcsine or inverse sine of X . The result represents the angle (in radians) whose sine equals X .

Lucid 3-D includes the radians() and degrees() functions to convert between the two angle measurements.

Examples:

ASIN(.99) = 1.43

ASIN(B5)

ASINH

ASINH(X)

X = a numeric value

ASINH returns the inverse hyperbolic sine, or the arc-hyperbolic sine. The result represents the angle (in radians) whose hyperbolic sine equals X .

Lucid 3-D includes the radians() and degrees() functions to convert between the two angle measurements.

Examples:

ASINH(.5) = .48

ASINH(A1)

ATAN

ATAN(X)

X = a numeric value

ATAN returns the arctangent or inverse tangent of X . The result represents the angle (in radians) whose tangent equals X .

Lucid 3-D includes the radians() and degrees() functions to convert between the two angle measurements.

Examples:

ATAN(PI()/4) = 0.67

ATAN(A1)

ATAN2

ATAN2(X, Y)

X = a numeric value

Y = a numeric value

ATAN2 returns the arctangent (inverse tangent) of the Y entry divided by the X entry. X is the arccosine component. Y is the arcsine component.

Because you specify the sine and cosine portions of the tangent separately, ATAN2 returns values between -180 degrees and 180 degrees (PI to PI radians).

ATAN2 returns ERR if X and Y both contain zero.

Lucid 3-D includes the radians() and degrees() functions to convert between the two angle measurements.

Examples:

ATAN2(A1,B1)

ATAN2(PI()/2,PI()/2) = 0.79

ATANH

ATANH(X)

X = a numeric value

ATANH returns the hyperbolic arctangent, the inverse of the hyperbolic tangent. The result represents the angle (in radians) whose hyperbolic tangent equals X .

Lucid 3-D includes the radians() and degrees() functions to convert between the two angle measurements.

Examples:

ATANH(-5) = .55

ATANH(A1)

AVG

AVG(*list*)

list = cells, ranges, or expressions

AVG returns the average of a list of cells, ranges, or expressions. Lucid 3-D computes average by adding the values and dividing by the number of values. AVG returns the SUM of a range divided by the COUNT of that range. Lucid 3-D omits labels and empty cells in the computation.

Examples:

AVG(B10:B20)

AVG(Sales totals)

AVG(January:December)

CEILING

CEILING(X)

X = cell reference

CEILING returns the smallest integer that is not less than the expression. It always rounds up to the next integer.

Examples:

CEILING(7.999) = 8

CEILING(7.001) = 8

CELL

CELL(*layer, row, column*)

layer = a positive integer

row = a positive integer

column = a positive integer

CELL returns the cell reference for the *layer*, *row*, and *column*. Cell returns ERR if any of the parameters contain negative numbers or non-integer values, or if the resulting cell reference is invalid.

Examples:

CELL(1,2,3) = A::C2

CELLOF

CELLOF(*range,layer,row,column*)

range = a valid range reference

layer = a positive integer

row = a positive integer

column = a positive integer

CELLOF returns the cell reference for *layer*, *row*, and *column* relative to *range*. CELLOF returns ERR if any of the parameters contain negative or non-integer values; or if the resulting cell reference is invalid or outside *range*.

Examples:

CELLOF(A1..A21,1,2,3) = A::D3

CHAR\$

CHAR\$(X)

X = an integer between 1 and 255

CHAR\$ returns the ASCII character corresponding to X . CHAR\$ returns ERR if X contains a non-integer value, or a value less than 1 or greater than 255.

Examples:

CHAR\$(65) = A

CHAR\$(97) = 2

CHOOSE

CHOOSE(*index*,*list*)

index = a positive integer less than or equal to the number of items in *List* minus one

list = a list of values separated by commas

CHOOSE returns the item in *list* in the *index* position. The first item in the list is number 0. CHOOSE numbers subsequent items sequentially beginning with 1, 2, 3, and so on.

The *index* value must be zero or greater, and smaller than the number of items in the list. The list must contain at least one item. Each item in the list can be a cell reference, cell name, expression, or a combination of these.

Examples:

CHOOSE(A2,C1,C2,C3,C4,C5)

CHOOSE(A1,"FRED","MARTHA","FRANK")

CLEAN\$

CLEAN\$(*string*,{*validlo*,*validhi*})

string = a valid string value

validlo = a numeric value between 1 and 255

validhi = a numeric value between 1 and 255

CLEAN\$ returns *string* after removing all non-printable characters from it.

Printable characters are ASCII codes 32 through 127. You can specify the valid low and high characters if you desire. You must enter both high and low values or omit both.

If *string* is not a valid string value, or you supply an invalid high or low values, CLEAN\$ returns ERR.

Examples:

If A1 contains the label 2345Lucid 3-D

CLEAN\$ (A1,65,122) = Lucid 3-D

CLEANHI\$

CLEANHI\$(*string*)

string = a valid string value

CLEANHI\$ returns *string* after removing all high-order, non-printable characters (ASCII codes 128-255) from the string.

Examples:

If cell A1 contains the string "¾ Lucid 3-D"

CLEANHI\$ (A1,6) = Lucid 3-D

since ¾ represents the ASCII code 190 symbol

CLEANLO\$

CLEANLO\$(*string*)

string = a valid string value

CLEANLO\$ returns *string* after removing all low-order, non-printable characters (ASCII codes 1-31) from the string.

Examples:

If cell A1 contains the smiley face character in the string

Lucid 3-D,

CLEANLO\$(A1) = Lucid 3-D

CODE

CODE(*string*)

string = a valid string value

CODE returns the ASCII code corresponding to the first character of the string. If the parameter is a null string (""), CODE returns 0.

Examples:

CODE ("Lucid 3-D") = 78, the ASCII Code for L

COL

COL(*cell* or *range*)

cell = a valid cell reference

range = a valid range reference

COL is a column translator. It accepts a cell reference and returns an integer corresponding to the column portion of the cell reference. If you supply a range, COL returns the column number of the cell in the top left corner of the range.

Examples:

COL(H1) = 8.00

COL(AA1) = 27.00

COL(IT9999) = 254.00

COLS

COLS(*cell or range*)

cell = a valid cell reference

range = a valid range reference

COLS returns the number of columns in *range*.

Use COLS with a range name to calculate the number of columns in the range. COLS always returns 1 if you specify a cell reference as the parameter. COLS(All) returns 255 in a default spreadsheet. All is the range of all cells that Lucid 3-D automatically creates in all sheets.

Examples:

COLS(A1:Z1) = 26.00

CONCAT\$

CONCAT\$(*list*)

list = valid string values separated by commas

CONCAT\$ returns the concatenated form of all strings, joined in the order specified. All arguments in the list must be strings or labels, or a cell reference containing a string or label. If CONCAT\$ encounters a non-string argument, it returns ERR.

Examples:

CONCAT\$(A1,A2,A3) = Welcome to Lucid 3-D!

where

A1 = "Welcome "

A2 = "to "

A3 = "Lucid 3-D!"

COS

COS(X)

X = a numeric value

COS returns the cosine of X , the relationship of the opposite side of an angle to the hypotenuse. COS returns the relationship expressed in radians.

Lucid 3-D includes the radians() and degrees() functions to convert between the two angle measurements.

Examples:

COS(PI()/3) = .50

COS(A3)

COS(A4/A2)

COSH

COSH(X)

X = a numeric value

COSH returns the hyperbolic cosine, the inverse cosine of the angle X (in radians). Lucid 3-D includes the RADIANS() and DEGREES() functions to convert between the two angle measurements.

Examples:

$$\text{COSH}(\text{PI}/4) = 1.32$$

$$\text{COSH}(\text{B3})$$

COUNT

COUNT(*list*)

list = cells, ranges, or expressions containing values to count

COUNT returns the number of values in the *list* of ranges, cells, or expressions.

Within ranges, COUNT counts all cells that contain numeric values or formulas, regardless of the results. It ignores labels or empty cells.

If you include a cell in the list, COUNT counts that cell, regardless of its contents. AVG, STD, and VAR work the same. You should normally enter single cells as ranges of one cell (A5:A5) instead of as single cells (A5).

Examples:

COUNT(A1:A4)

COUNT(A1:A3,A4)

COUNTA

COUNTA(*list*)

list = cells, ranges, or expressions containing values to count

COUNTA returns the number of cells in a range that contain numbers, labels, or formulas. COUNTA omits empty cells if they are part of a range, even if the range is only one cell (like A5:A5). If you list a cell individually, such as A5, Lucid 3-D counts it even if it is empty.

Examples:

COUNTA(A1:A4)

COUNTA(A1:A3,A4)

CTERM

CTERM(*rate, future value, present value*)

rate = the fixed interest rate per period (expressed as a decimal)

future value = the value the investment will reach

present value = the current value of the investment

CTERM returns the number of compounding periods required to arrive at a future value, from a present value, at an interest rate.

Examples:

1. The number of periods for \$10,000 to become \$100,000 at 10% interest:

$$\mathbf{CTERM(.1,100000,10000) = 24 \text{ (periods)}}$$

2. How long will it take to accumulate \$50,000 from \$20,000 at 12.5%?

$$\mathbf{CTERM(.125,50000,20000) = 8 \text{ (periods)}}$$

DATE

DATE(year,month,day)

year = a positive integer between 1 and 9999

month = a positive integer between 1 and 12

day = a positive integer between 1 and 31

DATE returns the number of days from the beginning of the Anno Domini calendar (January 3, 0001 A.D. = 2 days) for *year*, *month*, and *day*. DATE returns ERR if any parameter contains an invalid value, if you enter a date before January 1, 0001 or after December 31, 9999, or if the date falls between September 2, 1752 and September 14, 1752. (These days were removed from the calendar to correct the miscalculation of leap years.)

Years in this century must be four digits. Two-digit years represent years in the first century. The month must be from 1 to 12, and the day must be equal to or less than the number of days in the month. ERR results if you enter invalid dates like the 30th day of February, or a month greater than 12.

DATE returns the calendar date as a date integer or *datestamp*. Use the **Range|Format|Numeric** command to view these integers in date format. The integer format allows you to subtract two dates to get the number of days between them, or add a given number of days to a date to discover when a target date occurs. You can use the resulting number with most of the calendar functions.

Examples:

DATE(1966,5,31) = 717853.00

DATE(1976,7,4) = 721540.00

DATE(1995,1,1) = 728295.00

DATEVALUE

DATEVALUE(*datestring*,*formatstring*)

datestring = a date as a string, such as 12/31/93

formatstring = specifies the date components in *datestring*

DATEVALUE returns the datestamp that corresponds to *datestring* for use in other Lucid 3-D date functions. You can enter *datestring* as a string value enclosed in double quotations, or use the output from the DATE\$ command.

Formatstring contains a series of actions to inform DATEVALUE of the meaning of each character in *datestring*. To enhance clarity and readability, we recommend that you include a separator in *datestring* and *formatstring* to separate the month, day, and year components. A separator can be any non-numeric character, for example a slash or dash.

DATEVALUE attempts to match each character in *datestring* with a character or action in *formatstring*. The actions in *formatstring* have the following effect unless DATEVALUE encounters a separator character:

Action	Meaning
{Month}	1 or 2 digit numeric month
{Month2}	2 digit numeric month
{MonthName}	Full month name
{MonthName3}	3 character month abbreviation
{Date}	1 or 2 digit numeric date
{Date2}	2 digit numeric date
{Year}	4 digit year, 93 translates to 0093
{Year2}	2 digit year (assumes current century)
{Year4}	1993

You must include a character in *formatstring* for every character in *datestring*. If you include a separator in *datestring*, you must include the separator in *formatstring* between actions.

If you omit a date component in *datestring*, DATEVALUE assumes the date component for the current day. If you omit the month in *datestring* and *formatstring*, DATEVALUE assumes the current month. If you omit a component in *datestring*, and include it in *formatstring*, DATEVALUE returns ERR. If you omit a component in *formatstring* and include it in *datestring*, DATEVALUE returns ERR.

Examples:

```
DATEVALUE("01/01/94","{Month}/{Date}/{Year}")
```

```
DATEVALUE("010194","{Month}{Date}{Year}")
```

```
DATEVALUE("010194","{Month}{Date}{Year2}")
```

```
DATEVALUE("010194","{Month}{Date2}{Year2}")
```

```
DATEVALUE("010194","{Month2}{Date2}{Year}")
```

```
DATEVALUE("010194","{Month2}{Date2}{Year2}")
```

```
DATEVALUE("1/1/94","{Month}/{Date}/{Year}")
```

```
DATEVALUE("Jan. 1, 94","{MonthName3}. {Date}, {Year}")
```

DATEVALUE("Jan. 1, 1994","{MonthName3}. {Date}, {Year4}")

DATEVALUE("January 1, 1994","{MonthName} {Date}, {Year}")

DATE\$

DATE\$(*datestamp*,*stringtemplate*)

datestamp = the integer date result of the DATE, TODAY, or JULIAN functions, or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

stringtemplate = any of the template symbols listed below

DATE\$ takes a datestamp and returns it as a string in the format you specify. You must enclose format string in quotations. See the DATEVALUE function for additional information on formatting dates, including the actions that you can include within the brace symbols, {}, and their meaning in the DATE\$ and DATEVALUE functions.

DATE\$ supports one additional action that you can include within the braces, the {Th} action. The {Th} action appends the appropriate characters st, nd, or rd to the day component if date component is a 1, 2, or 3 and the first digit in the date is not a 1.

Examples:

DATE\$(DATE(1989,12,30),"{Month2}/{Date2}/{Year2}") = 12/30/89

DATE\$(721540,"{MonthName}{Date}, {Year4}") = July 4th, 1776

DAY

DAY(*datestamp*)

datestamp = the integer date result of the DATE, TODAY, or JULIAN functions, or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

DAY returns the day of the month of an integer date. DAY returns an integer from 1 to 31, although some months have fewer days.

Examples:

DAY(31962) = 5

DAY(232867) = 23

DAYOFWEEK

DAYOFWEEK(*datestamp*)

datestamp = the integer date result of the DATE, TODAY, or JULIAN functions, or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

DAYOFWEEK returns the number that represents the day of the week for *datestamp*. Sunday is 1, and Saturday is 7. *datestamp* must contain the number of days from the start of the Anno Domini calendar. DAYOFWEEK returns ERR if *datestamp* is out of range.

Examples:

DAYOFWEEK\$(717855) = 5

DAYOFWEEK\$(DATE(1994,1,1)) = 7

DAYOFWEEK\$(C7)

DAYOFWEEK\$

DAYOFWEEK\$(*datestamp*)

datestamp = the integer date result of the DATE, TODAY, or JULIAN functions, or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

DAYOFWEEK\$ returns the string that represents the day of the week for *datestamp*. The *datestamp* must be the number of days from the start of the AD calendar

Examples:

DAYOFWEEK(717855) = Thursday

DAYOFWEEK(DATE(1994,1,1)) = Saturday

DAYOFWEEK(C7)

DAYS

DAYS(*datestamp*,*datestamp*)

datestamp = the integer date result of the DATE, TODAY, or JULIAN functions, or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

DAYS returns the number of days between the first and second datestamp.

Examples:

DAYS(232867,232502) = 365

DAYS(DATE(1993,7,22),DATE(1966,5,31)) = 9914

DAYS(A1,A2)

DAYS360

DAYS360(*datestamp*,*datestamp*)

datestamp = the integer date result of the DATE, TODAY, or JULIAN functions, or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

DAYS360 returns the number of days between the first and second *datestamp* based on a 360-day year (30-day month). ERR results if either parameter is not a valid *datestamp* or if either *datestamp* represents a date whose day is the 31st day of the month.

Examples:

DAYS360(232867,232502) = 360

DAYS360(today(),date(1995,1,1))

DAYS360(B5)

DAY\$

DAY\$(*datestamp*)

datestamp = the integer date result of the DATE, TODAY, or JULIAN functions, or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

DAY\$ returns the ordinal day of the month, between 1st and 31st, for the date in *datestamp*, as a string. The *datestamp* must be the number of days from the start of the Anno Domini calendar. DAY\$ returns ERR if the supplied *datestamp* is out of range.

Examples:

DAY\$(232867) = 23rd

DAY\$(DATE(1993,10,31)) = 31st

DAY\$(A4)

DDB

DDB(*cost, salvage, life, period*)

cost = the asset's purchase price

salvage = the expected value of the asset at the end of its useful life

life = the number of periods that the asset is useful

period = the period of depreciation

DDB stands for the double declining balance method of depreciation and calculates the depreciation amount on a capital asset in a given period. The double declining balance method gives large depreciation amounts in the beginning periods and smaller amounts near the end of the asset's useful life.

Examples:

1. Depreciation for first year, \$500,000 purchase price, \$50,000 salvage value after 5 years:

$$\mathbf{DDB(500000, 50000, 5, 1) = \$200,000}$$

2. The salvage value in the third year:

$$\mathbf{DDB(500000, 50000, 5, 3) = \$72,000}$$

DEGREES

DEGREES(*radians*)

radians = numeric value

degrees converts the angle represented as *radians* to the angle representation in degrees. A circle consists of 360 degrees, or 2 PI radians. Lucid 3-D includes the RADIANS() function to convert from degrees to radians.

Examples:

$$\text{DEGREES (.5)} = 30$$

$$\text{DEGREES (1.57)} = 90$$

$$\text{DEGREES (2*PI())} = 360$$

DLOOKUP

DLOOKUP(*range, condition, key, rowoffset, columnoffset*)

range = a valid range reference

condition = a comparison operator enclosed in double quotations

key = a string or numeric value or a cell reference

rowoffset = a positive integer

columnoffset = a positive integer

DLOOKUP is a one dimensional table lookup function. It searches for *key* in the cell in the upper left corner of all layers in *range*, based on *condition*.

You can specify a string or numeric value for *key*, or a cell reference containing a string or numeric value. You may include any of the following comparison operators for *condition*: "<", "<=", "=", ">=", or ">".

Rowoffset and *columnoffset* define the row and column of the cell DLOOKUP returns. When DLOOKUP locates a cell containing *key* that satisfies *condition*, DLOOKUP returns the contents of the cell that is *rowoffset* rows below and *columnoffset* columns to the right of the cell that satisfies the condition.

DLOOKUP skips empty cells and cells that contain a different data type than *key*. DLOOKUP returns ERR if it fails to locate a cell that satisfies *key* and *condition*, if *rowoffset* or *columnoffset* contain negative or non-numeric values, or if *rowoffset* or *columnoffset* generate a cell reference outside of *range*.

Examples:

DLOOKUP(A::A1:G::E10, "<", 100, 1, 3)

Searches the cells in A::A1 through G::A1, for a value less than 100. When it locates a value less than 100, it returns the contents of the cell one row below and three columns to the right of the cell that contains the value. For example, if DLOOKUP locates the value 98 in the cell B::A1, it returns the value in the cell at layer B, row 4, column D.

DLOOKUP(B::B2:M::L10, "<", 0, 0,1)

Searches the cells in B::B2..M::B2 for negative values and returns the contents of the cell immediately to the right of it.

DOLLAR\$

DOLLAR\$(X,{*decimals*})

X = a numeric value

DOLLAR\$ converts the value in *X* to a string and inserts a decimal point, commas, and a dollar sign to format *X* as a monetary value. If *decimals* contains a positive integer, DOLLAR\$ rounds *X* to contain *decimals* digits to the right of the decimal point. If *decimals* contains a negative integer, DOLLAR\$ rounds *decimals* digits to the left of the decimal point to zero. If you omit *decimals*, DOLLAR\$ assumes a value of 2 and rounds *X* to 2 places to the right of the decimal point.

DOLLAR\$ returns an error if *decimals* does not contain an integer value, or if *decimals* contains a value outside the range -20 to 20.

Examples:

DOLLAR\$(1234.5678,2) = \$1,234.57

DOLLAR\$(1234.5678,-2) = \$1,200.00

DOLLAR\$(A2,2)

ERR

ERR()

Any formula that results in an error shows ERR in the cell. Entering ERR into a cell explicitly produces an error condition. You can also cause it deliberately by entering a formula such as 1/0.

ERR has no numeric value. When a formula in the sheet refers to a cell with ERR, Lucid 3-D passes the ERR on to become the result of that formula.

EXACT

EXACT(*string1*,*string2*)

string1 = a valid text string

string2 = a valid text string

EXACT compares two string values for an exact match, including the case of letters. Exact returns ERR if either cell contains numeric values.

Examples:

EXACT("THIS","THAT") returns 0

EXACT("THIS","THIS") returns -1

EXACT(A1,A2)

EXP

EXP(X)

X = a numeric value

EXP returns the value of e raised to the X th power. e is a constant used in scientific formulas and equals 2.7182818284591 in Lucid 3-D. e is also the base used in natural logarithms (LN function). EXP is the inverse of the LN function.

EXP(1) generates the value e for use in calculations, since any number raised to the power 1 is the number itself.

Examples:

EXP(1)

EXP(B4)

EXP(A1-A2*A3)

FACT

FACT(X)

X = a numeric value

FACT returns the product of all integers from 1 to X .

Examples:

FACT(4) = 24, the product $4*3*2*1$

FACT(A8)

FALSE

FALSE()

FALSE is a logical function that always equals 0.00 in Lucid 3-D. FALSE does not require a parameter, but requires parentheses.

FILEEXISTS

FILEEXISTS(*string*)

string = a valid string value

FILEEXISTS returns TRUE (-1.00) if the *string* is a unique file that exists, or FALSE (0.00) if the file does not exist. Lucid 3-D searches only the current directory unless you specify a complete path name.

Examples:

```
FILEEXISTS("sheet1.lcw")
```

```
FILEEXISTS(A1)
```

```
FILEEXISTS("c:\autoexec.bat")
```

FIND

FIND(substring,searchstring,offset)

substring = the substring to find

searchstring = the string to search

offset = the character position where the search begins

FIND compares two cells containing strings and determines the position of *substring* within *searchstring*. The search begins at *offset* and continues to the end of the string. FIND returns ERR if it fails to locate the string.

Offset lets you start the search a specified number of characters into the search string. To search the entire string, use an offset of 1.

You may specify control characters in the substring by prefixing the control character letter with the tilde character (~). To search for Control J, enter "~J". To find an actual tilde character, use "~~".

FIND returns ERR if it fails to find a match, if *substring* is a null string (""), or if the *offset* is less than 1.

Note: FIND performs a case-sensitive search.

Exercise

1. In cell A1, enter:

Amalgamated Gadgets Incorporated

2. In cell A2, enter: **Inc**

3. Enter in cell A3:

FIND(A2,A1,0)

FIND returns 21.00, because the label "Inc" was found in cell A1 in the 20th position.

4. Now change A2 to "**ted**". The new result is 9.00, because that string is found (first) in the 9th position.

5. Now edit the FIND formula to read:

FIND(A2,A1,10)

6. The new result is 30.00 because FIND started after the first occurrence of "ted" and found the second occurrence in position 29.

FIXED\$

FIXED\$(X,{*decimals*})

X = a numeric value

decimals = an integer value in the range -20 to 20

FIXED\$ converts the value in *X* to a string and inserts a decimal point and commas. If *decimals* contains a positive integer, FIXED\$ rounds *X* to contain *decimals* digits to the right of the decimal point. If *decimals* contains a negative integer, FIXED\$ rounds *decimals* digits to the left of the decimal point to zero. If you omit *decimals*, FIXED\$ assumes 0 and returns an integer.

FIXED\$ returns an error if *decimals* contains a value outside the range -20 to 20, or a non-integer value.

Examples:

FIXED\$(1234.5678, 2) = 1,234.57

FIXED\$(1234.5678,-2) = 1,200.00

FIXED\$(A2,2)

FLOOR

FLOOR(X)

X = a numeric value

FLOOR returns the largest integer not greater than the expression. It always rounds down to the nearest integer.

Examples:

$$\text{FLOOR}(5.001) = 5$$

$$\text{FLOOR}(5.999) = 5$$

FV

FV(payment,rate,term)

payment = the amount paid each period

rate = the interest rate charged per period (expressed as a decimal)

term = the number of payments

Note: Rate is the interest rate per period not the more familiar A.P.R. (Annual Percentage Rate). To determine the rate, divide the APR by the number of periods per year. For instance, enter 8% APR as .08/12, for monthly payments.

FV returns the future value of a set of equal cash flows, assuming a constant interest rate and equally spaced payments. It is based on the following formula:

$$FV = \text{payment} * ((1 + \text{rate})^{\text{term}} - 1) / \text{rate}$$

Examples:

1. Monthly payments of \$250, at 10% APR, for 5 years (60 months) would be:
FV(250,.10/12,60) = \$19,359.27

HEX

HEX(*string*)

string = a valid string

HEX returns the value of an unsigned case-insensitive hexadecimal string (of up to 32 bits of precision). It returns ERR if the argument is not a string, if the hexadecimal string is null ("") or contains more than 8 characters, or if the string contains a non-hexadecimal digit. Valid hexadecimal digits are 0-9 and A-F.

Examples:

HEX("FFFF") = 65535

HEX(A1)

HEX\$

HEX\$(X)

X = a numeric value

HEX\$ returns the ASCII hexadecimal string representation of X .

HEX\$ returns ERR if X is not numeric, if X contains a value too large to fit in a 32-bit unsigned integer, or if X is negative.

Examples:

HEX\$(65535) = FFFF

HLOOKUP

HLOOKUP(*range*, *condition*, *key*, *layeroffset*, *rowoffset*)

range = a valid range reference

condition = a comparison operator

key = a numeric value or string

layeroffset = a positive integer

rowoffset = a positive integer

HLOOKUP is a one dimensional, horizontal table lookup function. It searches for *key* in the uppermost row in *range*, based on *condition*.

You can specify a string or numeric value for *key*, or a cell reference containing a string or numeric value. You may include any of the following comparison operators for *condition*: "<", "<=", "=", ">=", or ">".

Layeroffset and *rowoffset* define the layer and row of the cell HLOOKUP returns. When HLOOKUP locates a cell containing *key* that satisfies *condition*, HLOOKUP returns the contents of the cell that is *layeroffset* layers deeper and *rowoffset* rows below the cell that satisfies the condition.

HLOOKUP skips empty cells and cells that contain a different data type than *key*. HLOOKUP returns ERR if it fails to locate a cell that satisfies *key* and *condition*, if *layeroffset* or *rowoffset* contain negative or non-numeric values, or if *layeroffset* or *rowoffset* generate a cell reference outside of *range*.

Examples:

HLOOKUP(A::A1:D::E10, "<", 100, 1, 2)

Searches the cells in row 1 of layer A in columns A through E for a value less than 100. When it locates a value less than 100, it returns the contents of the cell one layer deeper and two rows to the right of the cell that contains the value. For example, if HLOOKUP locates the value 98 in the cell in layer A, row 1, column A, it returns the value in the cell at layer B, row 1, column C.

HLOOKUP(B::B2:E::L10, "<", 0, 0,1)

Searches row 2 of layer B in columns B through E for negative values and returns the contents of the cell immediately to the right of it.

HOUR

HOUR(*timestamp*)

timestamp = a positive integer less than 86,400, representing the number of elapsed seconds. Use TIME or NOW functions to produce *timestamp* or enter it directly as a number.

HOUR returns the hours component of *timestamp*. Lucid 3-D expresses time values as the number of seconds since midnight. HOUR returns ERR if *timestamp* contains a negative number or a value larger than or equal to 86,400.

Examples:

HOUR(NOW) = current hour

HOUR(TIME(3,15,30)) = 3

HOUR(44857) = 12 (the noon hour)

HOUR(A1) = hour of cell A1

HOURS

HOURS(*timestamp*,*timestamp*)

timestamp = a positive integer less than 86,400 representing the number of elapsed seconds. Use the TIME or NOW functions to produce *timestamp* or enter it directly as a number.

HOURS returns the number of hours between the second and first timestamps. HOURS returns an error if either timestamp contains a negative number or a value larger than or equal to 86,400.

Examples:

HOURS(10500,3600) = 2

HOURS(3606,10800) = -2

HOURS(TIME(3,15,30),TIME(4,56,24)) = -1.68

HYPOT

HYPOT(*length1*,*length2*)

length1 and *length2* = numeric values

HYPOT returns the length of the hypotenuse of a right triangle whose sides are *length1* and *length2*. The length of the hypotenuse squared equals the sum of the square of its sides. HYPOT returns ERR if *length1* and *length2* contain non-numeric values or negative numbers.

The following example returns 5 because 3², which is 9, plus 4², which is 16, equals 25, which is 5.

Examples:

HYPOT(3,4) = 5

HYPOT(1,2) = 2.24

HYPOT(A1,B1)

IF

IF(*comparison,true result,false result*)

comparison = an expression that evaluates to TRUE or FALSE

true result = a number or string to return if the comparison is true

false result = a number or string to return if the comparison is false

IF returns one of two values, *true result* or *false result*, based on the results of a logical *comparison*. Lucid 3-D returns a FALSE result as 0.00, and a TRUE result as -1.00.

Lucid 3-D returns ERR if the result of the comparison is non-numeric, or if the return expressions are not string or numeric values.

Comparison expressions are written using one or more of the following operators:

=	Equal to
<	Less than
<=	Less than or equal
>	Greater than
>=	Greater than or equal
<>	Not equal
&	Bitwise AND
	Bitwise OR
^	Bitwise XOR
~	Bitwise NOT

Examples of valid comparison expressions using actual numbers:

1=1(TRUE) -1.00

1>=2 (FALSE) 0.00

1>2(FALSE) 0.00

2<>2 (FALSE) 0.00

The last example is FALSE because < > means not equal and 2 equals 2. If you enter any of these examples directly into a cell, -1.00 or 0.00 shows for TRUE or FALSE.

These examples use cell references in their comparisons:

A1>A2

B1=B2

C3<>C2

D1=>D3

D3>4

E1=10

These formulas would show **-1.00** (TRUE) or **0.00** (FALSE) depending on the contents of the cells shown.

Using Labels with Comparison Functions

We entered the results Yes and No into cells and referred to those cells in the IF formulas. You could also

enter labels as part of the formula like:

IF(A1<A2,"Yes","No")

Using Values in Comparisons

Because 0.00 is FALSE and any non-zero value is TRUE, you can use other expressions instead of expressions using comparison operators.

For example, the formula:

IF(A1,A4,A5)

returns the contents of cell A4 if cell A1 contains a non-zero value, or A5 if cell A1 contains a numeric value of 0, or is empty. Try entering this formula, and go to cell A1 and enter various numbers to see what Lucid 3-D treats as true.

INDEX

INDEX(*layer, row, column*)

layer = a positive integer

row = a positive integer

column = a positive integer

INDEX returns the value of the cell whose cell reference is defined by *layer*, *row*, and *column*. It returns error if any of the arguments are not positive integers, or if the cell reference is invalid.

Examples:

INDEX(2,2,2) = the contents of cell B::B2

INDEX(A1,A1,A1)

INDEXR

INDEXR(*range,layer,row,column*)

range = a valid range reference

layer = a positive integer

row = a positive integer

column = a positive integer

INDEXR returns the value of the cell whose cell reference is defined by *layer*, *row*, and *column*, relative to the *range*. In contrast to INDEX, *layer*, *row*, and *column* act as offset values from the upper left corner of the range. INDEX counts the first layer, row, and column in the spreadsheet as 1. INDEXR treats the upper-left corner of the *range* as layer 0, row 0, column 0.

INDEXR returns ERR if any of the offset parameters are not positive integers, or if the cell reference is invalid or does not remain within the *range*.

Examples:

INDEXR(B::B2:E::E5,3,3,3) = the contents of cell E:E5

INDEXR(D:D7::Z:Z39,0,0,0) = the contents of cell D:D7

INT

INT(X)

X = a numeric value

INT returns the integer value of X . To obtain integer value, INT truncates the fractional part of the number.

INT does not round values, it discards the fractional part of the value entirely, so INT(7.99) evaluates as 7. See ROUND if you need to round numbers instead of truncating.

Examples:

INT(A4)

INT(A4/2)

IPMT

IPMT(*principle*,*rate*,*term*,*periodnumber*)

principle = a positive numeric value representing the amount of the loan

rate = interest rate per period expressed as a decimal

term = a positive integer representing the number of payments

periodnumber = a positive integer identifying the payment number of *term*

IPMT returns the interest portion of a loan payment for a certain *period number* in the *term* of the loan. IPMT calculates the interest based on the *principle* borrowed for *term* amount of time, at an interest rate of *rate*. IPMT assumes that *rate* contains a constant annual interest rate and the number of periods in *term* are equally spaced throughout *term*.

IPMT calculates the amount of interest included in a loan payment for a certain payment number. For example, to determine the amount of interest contained in payment number 3 of a \$15,000 loan at 8% interest for 60 months, use the following formula:

IPMT(15000,.08/12, 60,3)

IPMT returns ERR if any of the parameters contain non-numeric values. See the PPMT function to calculate the amount of principle payment contained in a loan payment, and the PMT function to calculate the total amount of a payment. PMT calculates the amount of payment on a loan at an interest rate, IPMT calculates the amount of interest contained in the payment, and PPMT calculates the amount of principle.

Note: Due to rounding, the amount that PPMT and IPMT return may not total exactly to the amount PMT returns.

Examples:

1. What monthly payment is required to repay \$20,000 at 7% interest for 48 months? How much interest does the 13th payment include and how much principle does it include?

PMT(20000,.07/12,48) = 478.92 (the amount of payment)

PPMT(20000,.07/12,48,13) = 471.95 (the amount of principle in the 13th payment)

IPMT(20000,.07/12,48,13) = 6.98 (the amount of interest in the 13th payment)

2. **IPMT(A1,B1/12,C1,D1)** computes the amount of interest on the principle in cell A1 at the interest rate in B1, for the term in C1, for the payment number in D1.

IRR

IRR(*range*,*guess*)

range = a valid range reference representing the range of cash flow amounts comprising the investment

guess = a numeric value

IRR computes the internal rate of return or the interest rate that makes the net present value (NPV) of an investment equal to zero. Like NPV, you can use the internal rate of return to evaluate the relative attractiveness of investment opportunities.

You compute an IRR by trial and error (iteration), using the guess interest rate as the starting point.

Guess estimates the internal rate of return on the investment represented by *range*. If you have no idea what this number might be, start with zero. A value between 0 and 1 usually gives a good answer. If you fail to find an answer after 20 tries, an error results. An answer is found if the difference between two iterations is less than 1.0E-7.

In the range, the first entry should be negative, indicating the initial outlay. The following entries are the cash flows made at regular intervals. If there are some negative entries in the cash flows, IRR can return more than one answer depending on the guess interest rate. See MIRR for cash flows that change in sign. IRR treats blank cells as zero.

ISBLANK

ISBLANK(*cell or range*)

ISBLANK returns TRUE (-1.00) if *cell* is empty, or if *range* contains all empty cells. ISBLANK returns FALSE (0.00) if *cell* contains a string, label, or number; or if *range* contains values in any cell. ISBLANK returns ERR if you specify an invalid cell or an invalid range reference.

Examples:

ISBLANK(A1) = -1.00 if cell A1 is empty, 0.00 if cell A1 contains a number, string, or label

ISBLANK(A1..D4) = 0.00 if any cell in the range A1 through D4 contains a number, string, or label, -1.00 if all of cells in the range A1 through D4 are empty

ISERR

ISERR(*cells or ranges*)

ISERR tests the given cell (or cells) for an error condition. If Lucid 3-D finds ERR, it returns the value TRUE, otherwise it returns FALSE. TRUE equates to -1.00 and FALSE equates to 0.00.

ERR can result from a mistyped formula, missing or incorrect data, an attempt to divide by 0, or other unintentional error, or the result of intentionally entering ERR into a cell. ISERR traps an error condition to prevent it from flowing throughout your entire sheet.

Any formula that contains or depends on a value of ERR yields a result of ERR. The formula IF(A1=ERR(),A2,A3) always results in ERR. To return A2 or A3, use the formula:

IF(ISERR(A1),A2,A3)

Examples:

ISERR(C1)

ISERR(C1:D5)

ISERR(C1,C2,H3)

ISERR(C1:C10,E4,E5)

ISERROR

ISERROR(*cells or ranges*)

ISERROR returns TRUE if any cell in the list contains an error or NA reference. If all cells equate to anything else, ISERROR returns FALSE. TRUE equates to -1.00 and FALSE equates 0.00.

Examples:

ISERROR(C1)

ISERROR(C1:D5)

ISERROR(C1,C2,H3)

ISERROR(C1:C10,E4,E5)

ISLABEL

ISLABEL(*cells or ranges*)

ISLABEL returns TRUE if it finds a label reference in any of the cells in the list. If no labels appear in the cells, ISLABEL returns FALSE. TRUE equates to -1.00 and FALSE equate to 0.00.

Examples:

ISLABEL(C1)

ISLABEL(C1:D5)

ISLABEL(C1,C2,H3)

ISLABEL(C1:C10,E4,E5)

ISLOGICAL

ISLOGICAL(*cells or ranges*)

ISLOGICAL returns TRUE if any of the cells in the list contain -1.00 (TRUE), or 0.00 (FALSE).

ISLOGICAL returns FALSE if any cell in the list contains nonnumeric values or numeric values other than 0 or -1.

Examples:

ISLOGICAL(C1)

ISLOGICAL(C1:D5)

ISLOGICAL(C1,C2,H3)

ISLOGICAL(C1:C10,E4,E5)

ISNA

ISNA(*cells or ranges*)

ISNA examines the cells and returns TRUE if any cell contains the entry NA. Otherwise, it returns FALSE. TRUE equates to -1.00 and FALSE equates to 0.00. ISNA corresponds to NA in much the same way ISERR corresponds to ERR.

Examples:

ISNA(C1)

ISNA(C1:D5)

ISNA(C1,C2,H3)

ISNA(C1:C10,E4,E5)

ISNONNUMBER

ISNONNUMBER(*cells or ranges*)

ISNONNUMBER returns TRUE (-1.00) if any cell in the list contains a nonnumeric value, including a string, label, cell, or range reference. If any cells contain numbers, ISNONNUMBER returns FALSE (0.00).

Examples:

ISNONNUMBER(C1)

ISNONNUMBER(C1:D5)

ISNONNUMBER(C1,C2,H3)

ISNONNUMBER(C1:C10,E4,E5)

ISNONSTRING

ISNONSTRING(*cells or ranges*)

ISNONSTRING returns TRUE (-1.00) if any cell in the list contains a number, label, cell, or range reference. If all cells contain string values, ISNONSTRING returns FALSE (0.00).

Examples:

ISNONSTRING(C1)

ISNONSTRING(C1:D5)

ISNONSTRING(C1,C2,H3)

ISNONSTRING(C1:C10,E4,E5)

ISNUMBER

ISNUMBER(cells or ranges)

ISNUMBER returns TRUE (-1.00) if any cell in its list contains a number. ISNUMBER returns FALSE (0.00) if all cells contain a label, string value, cell, or range reference.

You can use ISNUMBER in an IF function.

For example:

IF(ISNUMBER(A1),A1,0)

returns 0.00 if cell A1 contains a label, and the number in cell A1 if A1 contains a number.

Exercise

1. Enter in cell A1:
14
2. Enter in cell A2:
ISNUMBER(A1)
3. The result is -1.00. Now enter in cell A1 the label "**Text**" and the formula results in 0.00.

ISRANGE

ISRANGE(*cells or ranges*)

ISRANGE returns TRUE (-1.00) if any argument in its list contains a range reference. If none of the arguments contain a range reference, ISRANGE returns FALSE (0.00).

Examples:

ISRANGE(C1)

ISRANGE(C1:D5)

ISRANGE(C1,C2,H3)

ISRANGE(C1:C10,E4,E5)

ISSTRING

ISSTRING(*cells or ranges*)

ISSTRING returns TRUE (-1.00) if any cell in its list contains a string. If all cells contain labels or numbers, ISSTRING returns FALSE (0.00).

Exercise

1. Enter in cell A2:
ISSTRING(A1)
2. Enter in cell A1 a label, like "**April**". A2 contains -1.00.
3. Now change cell A1 to a number. A2 contains 0.00.

JULIAN

JULIAN(*year*, *julianday*)

year = a four digit integer between 0001 and 9999

julianday = an integer between 1 and 365

JULIAN returns the number of days from the beginning of the Anno Domini calendar (i.e. January 3, 0001 A.D. = 2 days) for *year* and *julianday*. The *julianday* represents the number of days since December 31 of the previous year. For example, February 1 in any year is day 32.

JULIAN returns ERR if the date falls between September 2, 1752 and September 14, 1752. These days were deleted from the calendar to adjust for miscalculated leap years.

Examples:

JULIAN(1993,203) = 727767

JULIAN(1776,185) = 648491

JULIANDAY

JULIANDAY(*datestamp*)

datestamp = the integer date result of the DATE, TODAY, or JULIAN functions or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

JULIANDAY returns the Julian day of the year, between 1 and 366, for the date specified by *datestamp*.

You must express *datestamp* as the number of days from the start of the Anna Domini calendar.

JULIANDAY returns ERR if *datestamp* is out of range.

Examples:

JULIAN(123547) = 94

JULIAN(DATE(76,7,4)) = 186

JULIAN(C5)

LAYER

LAYER(*cell* or *range*)

LAYER returns the numerical value for the layer of *cell*. If you include *range*, LAYER returns the layer for the top left corner of *range*.

Examples:

LAYER(E5)

LAYER(C9:D7)

LAYER(EXPENSES::C5)

LAYERS

LAYERS(*cell or range*)

LAYERS returns the number of layers in *range*. LAYERS always returns 1 if the argument is a cell reference.

Examples:

LAYERS(A::A1:Z::A1) = 26

LAYERS(PARKING::C5:TOTALS::F10)

LEFT\$

LEFT\$(string,count)

string = a valid string

count = a positive integer

LEFT\$ returns a substring of *string*. *Count* specifies the number of characters to return. LEFT\$ returns *count* characters of string, beginning with the first character in *string*. If *count* is greater than the length of a *string*, LEFT\$ returns the entire contents of *string*. LEFT\$ returns ERR if *count* contains a negative number or non-integer value.

Examples:

LEFT\$("LUCIDITY",5) = LUCID

LEFT\$(A2,7)

LENGTH

LENGTH(*string*)

string = a valid string

LENGTH returns the number of characters in *string*. You can include a cell reference or an expression that results in a label. LENGTH returns ERR if *string* contains a number.

Exercise

1. In cell A1, enter:
Lucid 3-D for Windows
2. In cell A2, enter:
LENGTH(A1) = 21.00, because there are 21 characters (including the spaces) in the label **Lucid 3-D for Windows**.

LN

LN(X)

X = a positive numeric value

LN returns the natural logarithm of X , $\text{Log}_e(X)$. Natural logs use base e . e is a constant equal to 2.7182818284591 in Lucid 3-D.

In mathematics, LN is the inversion function of the EXP function. $\text{LN}(\text{EXP}(X))$ always equals X and $\text{EXP}(\text{LN}(X))$ always equals X .

LN returns ERR if X is negative.

Examples:

$$\text{LN}(2.7182818) = 1$$

$$\text{LN}(A3)$$

$$\text{LN}(A4 * A3)$$

LOG

LOG(X)

X = a positive numeric value

LOG returns the common logarithm of X , or Log_{10} (log base 10) of X . LOG returns ERR, if X contains a negative number.

Examples:

LOG(100) = 2.00

LOG(A4)

LOG(A4*3)

LOOKUP

LOOKUP(*range*, *rowcondition*, *rowkey*, *columncondition*, *columnkey*)

range = a valid range reference from a single layer

rowcondition = a comparison operator enclosed in quotes

rowkey = a string or numeric value or a cell reference to either

columncondition = a comparison operator enclosed in quotes

columnkey = a string or numeric value or a cell reference to either

LOOKUP is a two-dimensional table lookup function that searches the current layer of the spreadsheet.

LOOKUP searches the leftmost column of top layer in *range* for a cell that satisfies *rowkey* and *rowcondition*.

After it finds *rowkey*, it searches the top row in the layer for the cell that satisfies *columnkey* and *columncondition*.

If LOOKUP locates cells in both searches, it returns the value of the cell at the intersection of the two cells that satisfy the keys and conditions.

You can specify a string or numeric value for *key*, or a cell reference containing a string or numeric value. You may include any of the following comparison operators for condition: "<", "<=", "=", ">=", or ">".

LOOKUP skips empty cells and cells that contain a different data type than *key*. LOOKUP returns ERR if it fails to locate a cell that satisfies *key* and *condition*, if *rowoffset* or *columnoffset* contain negative or non-numeric values, or if *rowoffset* or *columnoffset* generate a cell reference outside of *range*.

Examples:

LOOKUP(B6:D10,">",5,"=",10)

Searches column B for a value greater than 5. When it finds it, it looks across row 6 for the value 10. It returns the contents of the cell at the intersection of the two cells.

LOTTO\$

LOTTO\$(*count,maximum*)

count = an integer between 1 and 10

maximum = an integer between 1 and 100

LOTTO\$ returns a string containing a series of non-repeating random integers. *Count* specifies the number of integers to return and *maximum* specifies the highest number allowable in the "draw". *Maximum* must exceed *count*.

Examples:

LOTTO\$(5,50)

returns 5 random numbers between 1 and 50

LOWER\$

LOWER\$(string)

string = a valid string

LOWER\$ returns the string with all uppercase letters in *string* converted to lower case. LOWER\$ does not change numbers embedded in *string*. LOWER\$ returns ERR if *string* does not contain a string value.

Examples:

LOWER\$("Lucid 3-D for Windows") = lucid 3-d for

windows

LOWER\$(A12)

MAX

MAX(*list*)

list = cells, ranges, or expressions

MAX returns the largest value in its list of cells, ranges, and expressions.

MAX accepts several types of data in its parentheses. It can take a list of expressions, constants, cell references, or range designations. Separate each cell reference or range designation by commas in the list. You can also use cell or range names in the list, or actual numbers. You can mix expressions combining cells, operators, and numbers. MAX ignores empty cells and cells with labels or string values.

Examples:

MAX(100,279,310,261,250-2) = 310.00

MEDIAN

MEDIAN(*list*)

list = cells, ranges, or expressions

MEDIAN returns the middle value in the list of cells. There are an equal number of values in the list that are larger and smaller than the value MEDIAN returns. If there are an odd number of values, MEDIAN always returns a value in the list. If there are an even number of values, MEDIAN returns a number halfway between the two center-most values in the list.

For example, MEDIAN (2,4,5) returns 4. MEDIAN (2,3,4,6) returns 3.5, the number halfway between 3 and 4, the two center-most values in the list. To demonstrate the difference between the AVERAGE function and the MEDIAN function, some of the following examples include the AVERAGE function.

Examples:

MEDIAN(2,3,4,6) = 3.5

AVERAGE(2,3,4,6) = 3.75

MEDIAN(1,2,4,5,8) = 4

AVERAGE(1,2,4,5,8) = 5

MEDIAN(C1..C10)

MID\$

MID\$(string,column {,length})

string = a valid string

column = a positive integer

length = a positive integer

MID\$ returns a substring of *string* beginning with the specified *column*, for an optional count of *length* characters. If you omit *length*, MID\$ returns the remainder of *string*. If *column* is larger than the number of characters in *string*, MID\$ returns a null string (""). If the value of *column* plus *length* exceeds the number of characters in *string*, MID\$ returns the remainder of *string* beginning at *column*.

Examples:

MID\$("Welcome to Lucid 3-D for Windows",12,9)

= "Lucid 3-D", 9 characters beginning with the 12th character

MID\$("Welcome to Lucid 3-D for Windows",12)

= "Lucid 3-D for Windows", the remainder of the string beginning with the 12th character.

MID\$(A1,4,5) = five characters of the string in cell A1 starting at the fourth character.

MIN

MIN(*list*)

list = cells, ranges, or expressions

MIN is the opposite of MAX, and returns the smallest value in its list. Positive numbers are always considered greater than negative numbers, even if the absolute value of the positive number is lower.

Like MAX, MIN accepts several types of data in its parentheses, including a list of expressions, constants, cell references, or range designations. Separate each cell reference or range designation by commas in the list. You can also use cell or range names in the list, or actual numbers. You can mix expressions combining cells, operators, and numbers. MIN ignores empty cells and cells that contain labels.

Examples:

MIN(100,279,310,261,250-2) = 100.00

MINUTE

MINUTE(*timestamp*)

timestamp = a positive integer less than 86,400, representing the number of elapsed seconds from the beginning of the day. You can supply a *timestamp* as the result of the TIME or NOW functions, or enter it directly as a number.

MINUTE returns the minute number (0-59) for *timestamp*. MINUTE does not return the total minutes, only the number of minutes into the current hour. To enter the total minutes in a time value in cell A1, use the MINUTES function and enter 0 for the second timestamp. See the MINUTES function for additional information.

Examples:

MINUTE(10861) = 12:01pm

MINUTE(7200) = 0

MINUTES

MINUTES(*timestamp*,*timestamp*)

timestamp = a positive integer less than 86,400, representing the number of elapsed seconds from the beginning of the day. You can supply a *timestamp* as a result of the TIME or NOW functions or enter it directly as a number.

MINUTES returns the number of minutes difference (including the fractional component) between the first and second timestamps. MINUTES returns ERR if either of the timestamps contains a negative value, or a value of 86,400 or larger.

To return the number of minutes elapsed in the current hour, use the formula: **MINUTES(NOW(),0)**

Examples:

MINUTES(7201,3601) = 60.00

MINUTES(3601,7201) = -60.00

MINUTES(A2,A1)

MIRR

MIRR(*range,riskrate,saferate*)

range = a range of cash flow amounts comprising the investment

riskrate = the interest rate you expect to receive from an investment of a comparable risk (reinvestment rate)

saferate = a value that represents the interest rate on a safe investment, like a savings account, CD, savings bond, or treasury bill (liquid rate)

The MIRR function calculates the modified internal rate of return on an investment. Like IRR, MIRR analyzes cash flows. MIRR is considered a more reliable measurement of the actual return rate than IRR. MIRR allows both negative and positive cash flows and removes the assumption that all cash flows are reinvested or discounted at the same interest rate. With MIRR, negative (liquid) cash flows are discounted at the safe interest rate (such as a passbook account rate), while positive cash flows are reinvested at the risk rate (or the return on an investment of comparable risk.)

MIRR obtains the future value of positive cash flows at the risk rate, the present value of the negative cash flows at the safe rate, and solves for an interest rate.

Values for IRR and MIRR are useful in comparing the attractiveness of two or more investments.

MOD

MOD(X,Y)

X = a numeric value

Y = a numeric value other than zero

MOD stands for modulus, and returns the remainder of dividing X by Y . MOD always returns a result smaller than Y .

Entering zero for the Y value results in ERR because you cannot divide by zero.

Suppose 120 people were going to ride buses to a baseball game. Each bus holds 55 riders. Divide 120 by 55 to determine the number of buses needed (2). Use the formula MOD(120,55) to determine how many people remain needing a ride. You could use that result (10) to determine if you need another bus. In this case, a few cars or a large van might be more appropriate than a third bus that would be almost empty.

Examples:

MOD(120,55) = 10.00

MOD(A3,A4)

MOD(B5*3,C1/2)

MONTH

MONTH(*datestamp*)

datestamp = the integer date produced using the DATE, TODAY, or JULIAN functions, or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

MONTH returns the calendar month (1-12) of *datestamp*.

Examples:

MONTH(32584) = 3.00 (for March)

MONTH(A1)

MONTHS30

MONTHS30(*datestamp*,*datestamp*)

datestamp = the integer date produced using the DATE, TODAY, or JULIAN functions, or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

MONTHS30 returns the number of months between the first and second datestamps, based on a 360 day year (30 day month). MONTHS30 returns ERR if either parameter is not a valid datestamp or if either *datestamp* represents the 31st day of the month.

Examples:

MONTHS30(A1,A2)

MONTH\$

MONTH\$(*datestamp*)

datestamp = the integer date produced using the DATE, TODAY, or JULIAN functions, or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

MONTH\$ returns the month in *datestamp* expressed as a string. *Datestamp* must be the number of days from the start of the Anno Domini calendar. It returns ERR if *datestamp* is out of range.

Examples:

MONTH\$(234987) = May

MONTH\$(A2)

N

N(cell or range)

N returns the value of *cell*, or the value of the cell in the top-left corner in *range*. N returns a zero if the cell contains a label or string.

NA

NA()

Enter NA into a cell when the data it should contain is not available. NA has no number. Like ERR, when a formula in the sheet refers to a cell with NA, the NA becomes the result of that formula.

Use NA as a place keeper when you are setting up formulas in spreadsheets, but do not yet have all your information. It prevents formulas relying on unavailable data from displaying incorrect results.

NA does not require a parameter, but you must include the parentheses.

NOT

NOT(X)

X = a comparison expression or numeric value

NOT reverses the true/false result of a comparison expression. For example, if you enter: $10 > 15$ Lucid 3-D returns a FALSE result (0.00). If you enter NOT($10 > 15$), Lucid 3-D returns a TRUE result, (-1.00). With the NOT function, nonzero values return FALSE (0.00) and zero values return TRUE.

When you use NOT with the values 0 and -1, NOT(1) is 0 and NOT(0) is -1.00.

NOW

NOW()

NOW returns the number of elapsed seconds from the beginning of the day. It reflects the time currently set in Windows and produces a timestamp value you can use in other time functions.

NOW does not require a parameter, but you must include the parentheses. Lucid 3-D recalculates NOW each time you press F9 (Calc), so you can keep it current as time passes.

Examples:

HOUR(NOW())

MINUTE(NOW())

SECOND(NOW())

NOW()

NPV

NPV(*range*,*rate*)

range = the range of cells containing the future cash flow amounts

rate = interest rate per period (entered as a decimal)

NPV calculates the net present value of a series of future cash flows. NPV is similar to PV (the present value function), but works with variable cash flows. Like PV, NPV assumes a constant interest rate and equally spaced payments.

With NPV, cash can flow in two directions: enter outgoing cash flows as negative numbers, incoming cash flows as positive numbers. NPV treats blank cells as zero.

NULL

NULL(*list*)

list = cells or ranges

NULL tests a cell, range of cells, or list of cells and ranges to see if they are empty. If any cell in its list contains a value, NULL returns FALSE (0.00). If all cells in the list are empty, NULL returns TRUE (-1.00).

You can include single cell references, range designations, cell or range names in the list.

Examples:

NULL(A1:A5,A10:A11,A15)

NUMBER\$

NUMBER\$(X)

X = a numeric value

NUMBER\$ returns the string equivalent of X . Use NUMBER\$ to convert a numeric value to a string for use by other string functions. If X contains all zeros to right of the decimal point, NUMBER\$ removes the zeros and the decimal point. NUMBER\$ returns ERR if X is not a constant value.

Examples:

NUMBER\$(11.00) = 11

NUMBER\$(C11)

OFFSET

OFFSET(*cellref*,*layers*,*rows*,*cols*,*depth*,*height*,*width*)

cellref = a valid cell reference

layers = a numeric value that identifies the number of layers from *cellref* to offset

rows = a numeric value that identifies the number of rows from *cellref* to offset

cols = a numeric value that identifies the number of columns from *cellref* to offset

depth = a numeric value that identifies the number of layers in the resulting range

height = a numeric value that identifies the number of rows in the resulting range

width = a numeric value that identifies the number of columns in the resulting range

OFFSET returns a range reference that is *layers*, *rows*, and *columns* distance from *cellref*. *Depth*, *height*, and *width* specify the size of the range reference.

OFFSET adds the value of *layers* to the layer value in *cellref*, adds *row* to the row value in *cellref*, adds *column* to the column value in *cellref*, and returns a range reference beginning at that cell. The range reference consists of *depth* layers, *height* rows, and *width* columns.

OFFSET returns ERR if *depth*, *height*, or *width* contain negative values, if the resulting offset is not within the bounds of the spreadsheet, if any arguments contain string or label values, or if *cellref* contains an invalid cell reference.

Example:

OFFSET(A::A2, 2,2,2,3,3,3) = C::E4..F::H7

OR

OR(*comparison expressions*)

comparison expressions = one or more comparison expressions, separated by commas, that evaluate to TRUE or FALSE

OR evaluates the expressions in *comparison expressions*, and returns TRUE if at least one of the expressions evaluate to TRUE. OR returns FALSE if none of the comparison expressions evaluate to TRUE.

Although Lucid 3-D allows you to enter an OR function into a cell, it is most useful in an IF statement to determine if one of two or more conditions are true. The following statement compares the contents of two cells and displays a message based on the result of the compare:

IF(OR(A::A1<B::A1,B::A1>C::A1),CONCAT\$("Higher Sales!"),CONCAT\$("High Sales!"))

if the contents of the cell B::A1 contains a larger value than the contents of cell A::A1 or B::A1 contains larger value than cell C::A1, this formula prints "Higher Sales". If both cells C::A1 and cell A::A1 contain larger values than cell B::A1, this formula displays "High Sales".

Examples:

OR(FALSE(),TRUE()) = 0.00 (TRUE)

OR(A1,A2)

PI

PI()

PI returns the constant, 3.1415926535898. PI represents the ratio of a circle's circumference to its diameter. You can type PI() when you need this value in calculations.

PI does not require a parameter, but you must include the parentheses that follow it.

Examples:

PI() = 3.14

PI()/3 = 1.05

PI()*A4

PMT

PMT(*principal,rate,term*)

principal = a positive numeric value representing the amount of money to borrow

rate = interest rate per period expressed as a decimal

term = a positive integer representing the number of payment periods

PMT calculates the payment per period on a loan, assuming a constant annual interest rate and equally spaced periods for the term. PMT is based on the following formula:

$$\text{PMT} = \text{principal} * \text{rate} / (1 - (1 + \text{rate})^{-\text{term}})$$

Examples:

1. Payment on a loan of \$15,000 borrowed at 8% APR for 5 years (with monthly payments):
PMT(15000,.08/12,60) = 304.15

POWER

POWER(X,Y)

X = a numeric value

Y = a numeric value

POWER returns the value of raising X to the power of Y.

Examples:

POWER(4,2) = 16.00

POWER(10,3) = 1000.00

POWER(A1,A2)

PPMT

PPMT(*principle*,*rate*,*term*,*periodnumber*)

principle = a positive numeric value representing the amount of the loan

rate = interest rate per period expressed as a decimal

term = a positive integer representing the number of payments

periodnumber = a positive integer identifying the payment number of *term*

PPMT returns the principle portion of a loan payment for a certain payment number. PPMT calculates the principle payment based on the *principle* borrowed for *term* amount of time, at an interest rate of *rate*. PPMT assumes that *rate* contains a constant annual interest rate and the number of payment periods in *term* are equally spaced throughout *term*.

PPMT calculates the amount of principle included in a loan payment for a certain payment number. For example, to determine the amount of principle contained in payment number 3 of a \$15,000 loan at 8% interest for 60 months, use the following formula:

PPMT(15000,.08/12, 60,3)

PPMT returns ERR if any of the parameters contain non-numeric values. See the PPMT function to calculate the amount of principle payment contained in a loan payment, and the PMT function to calculate the total amount of a payment. PMT calculates the amount of payment on a loan at an interest rate, IPMT calculates the amount of interest contained in the payment, and PPMT calculates the amount of principle.

Note: Due to rounding, the amount that PPMT and IPMT return may not total exactly to the amount PMT returns. PPMT and IPMT are accurate to plus or minus one cent.

Examples:

1. What monthly payment is required to repay \$10,000 at 7.5% interest for 36 months? How much interest does the 12th payment include and how much principle does it include?

PMT(10000,.075/12,36) = 311.06 (the amount of payment)

PPMT(10000,.075/12,36,12) = 3.45 (the amount of principle in the 12th payment)

IPMT(10000,.075/12,36,12) = 307.61 (the amount of interest in the 12th payment)

2. **PPMT(A1,B1/12,C1,D1)** computes the amount of principle payment on the principle in cell A1 at the interest rate in B1, for the term in C1, for the period number in D1.

PRODUCT

PRODUCT(*cells or ranges*)

PRODUCT returns the product of all numeric values in the list of cells. PRODUCT ignores strings, labels, and NA references. If PRODUCT encounters a cell containing ERR or non-numeric values, it returns ERR.

Examples:

PRODUCT(3,5,7) = 105

PRODUCT(A1:A5)

PRODUCT(A1:A5,7,3,5,6+A4)

PROPER\$

PROPER\$(*string*)

string = a valid string value

PROPER\$ converts all letters in *string* to proper case. Proper case is defined as capitalizing the first letter in the string, and any other letters in the string that follow any character other than a letter. PROPER\$ converts all remaining letters to lowercase. PROPER\$ returns ERR if you specify a nonstring value.

Examples:

PROPER\$("LUCID 3-D") = Lucid 3-D

PROPER\$(A5)

PV

PV(payment,rate,term)

payment = the amount to pay each period

rate = the interest rate per period expressed as a decimal

term = the number of payments to make

PV returns the present value of a set of cash flows, assuming a constant interest rate and equally spaced payments. PV is based on the following formula:

$$PV = \text{payment} * (1 - (1 + \text{rate})^{-\text{term}}) / \text{rate}$$

Examples:

$$\text{PV}(250,.10/12,60) = \$11,766.34$$

$$\text{PV}(560,.135/12,360) = \$48,890.70$$

RADIANS

RADIANS(*degrees*)

degrees = an angle representation

RADIANS converts an angle representation in *degrees* to radians. A circle consists of 360 degrees or $2 \cdot \text{PI}$ radians.

Examples:

RADIANS(30) = .52

RADIANS(90) = 1.15

RADIANS(A1)

RAND

RAND()

RAND generates a random number between zero and one. RAND requires no argument, but you must include parenthesis.

RAND returns a different non-inclusive value each time you recalculate the spreadsheet with F9(Calc). To generate a random number larger than one, multiply the RAND result by a larger number.

Examples:

RAND()

RAND()*100

generates a random value between 0 and 100

RANDOM

RANDOM(X)

X = a numeric value between 0 and 32,767

RANDOM returns a random integer between 0 and *X*-1. You can optionally seed the random number generator by executing a RANDOMIZE function.

Examples:

RANDOM(1001) = an integer between 0 and 1000

RANDOM(A5)

RANDOMIZE

RANDOMIZE(X)

X = a positive integer that acts as the random number seed

RANDOMIZE initializes the random number generator, based on the random number seed *X*. If *X* contains 0, RANDOMIZE initializes the random number generator with a random value. If *X* is in the range 1-65535, RANDOMIZE uses *X* to set the random number generator to a new starting point.

RANDOMIZE returns a predetermined sequence of numbers if *X* contains the same value on subsequent executions. This is useful during testing procedures to test with the same set of numbers on multiple iterations.

Examples:

RANDOMIZE(0)

RANDOMIZE(10000)

RANDOMIZE(D2)

RANGE

RANGE(*cellref*,*cellref*)

cellref = a valid cell reference

RANGE returns a range reference that includes the cell references in both parameters. The first cell reference represents the cell in the upper left corner of the top layer in the range. The second cell reference represents the cell in the lower right corner of the bottom layer in the range.

RANGE returns an error if *cellref* is invalid, if the layer value in the second *cellref* is smaller than the layer value in the first *cellref*, if the row value in the second *cellref* is smaller than the row value in the first *cellref*, or if the column value in the second *cellref* is smaller than the column value in the first *cellref*.

RANGE OF

RANGE OF(*cellref*)

cellref = a valid cell reference

RANGE OF converts a cell reference to a range reference that consists of a layer, row, and column value. RANGE OF returns ERR, if *cellref* is not a valid cell reference.

RATE

RATE(future value,present value,term)

future value = the value of the investment at the end of *term*

present value = the current value of the investment

term = the number of compounding periods

RATE calculates the interest rate that yields a future value, given the present value and the term (number of periods). RATE assumes a fixed interest rate and regular intervals.

Examples:

1. What monthly interest rate would be used if \$5,000 became \$10,000 in 5 years?
RATE(10000,5000,5*12) = .0116 (1.16%)
The monthly rate (1.16) multiplied by 12 yields the A.P.R. (13.94).
2. What would be the rate that \$100,000 increased in value to \$500,000 in 10 years with annual compounding?
RATE(500000,100000,10) = .174 (17.4%)

REF

REF(*"filename"*, *cellref*)

filename = the name of the file that contains the cell to reference

cellref = identifies the cell to reference in *filename*

REF establishes a link between two spreadsheets. It allows you to include the contents of a cell from a different spreadsheet in the cell that contains the REF function.

Include the layer value in *cellref*. If you omit the layer in *cellref*, Lucid 3-D assumes the top layer of the spreadsheet named in *filename*.

Lucid 3-D searches its home directory, LUCID3DW, for *filename*. If the spreadsheet you want to refer to is in a different directory, include the complete pathname in *filename*.

Examples:

REF("SALES.LCW",A12) inserts the contents of cell A12 of the top layer of the spreadsheet SALES.LCW, in the current cell.

REF("C:\WESTERN\SALES.LCW",IDAHO::B22) inserts the contents of cell B22 in the layer named IDAHO of the spreadsheet SALES.LCW in the WESTERN directory, in the current cell.

REPEAT\$

REPEAT\$(*string*,*count*)

string = a valid string

count = a positive integer

REPEAT\$ returns a text string made up of *string* repeated *count* times. REPEAT\$ returns ERR if *count* contains a negative value.

Examples:

REPEAT\$("LUCID",3) = LUCIDLUCIDLUCID

REPEAT\$(N12,10)

REPLACE\$

REPLACE\$(*string*,*column*,*count*,*newstring*)

string = a valid string

column = an integer between 1 and the length of *string*

count = a positive integer

newstring = a valid string

REPLACE\$ returns a string with *newstring* replacing characters in *string* beginning at *column*. *Count* specifies the number of characters to replace. REPLACE\$ returns ERR if *column* is less than 1 or greater than the length of the original string, or if *count* is less than zero or greater than the number of characters remaining in the string.

Examples:

REPLACE\$("Dear Mr. Brown:",6,2,"Mrs") = "Dear Mrs. Brown:"

REPLACE\$(A5,7,10,A6)

RIGHT\$

RIGHT\$(string,count)

string = a valid string

count = a positive integer

RIGHT\$ returns a substring of *string*. *Count* specifies the number of characters to return. If *count* exceeds the length of *string*, RIGHT\$ returns the entire string. RIGHT\$ returns an error if *count* is negative or not an integer.

Examples:

RIGHT\$("Lucid 3-D for Windows",7) = "Windows"

RIGHT\$(A7,10)

ROUND

ROUND(X,Y)

X = a numeric value

Y = an integer

ROUND returns X rounded to Y decimal places. If *decimals* contains a negative integer, ROUND returns a value that contains no digits to the right of the decimal point, and changes *decimal* digits to the left of decimal point to 0.

Examples:

ROUND(1.5,0) = 2.00

ROUND(4567.89,-2) = (45.00)

ROUND(1.5555,2) = 1.56

ROUND(A2,B7)

ROW

ROW(*cell or range*)

ROW returns the row number of a cell reference. If you include a range reference, ROW returns the top left corner of *range*. ROW returns ERR if you specify an invalid cell or range reference.

Examples:

ROW(B7) = 7

ROWS

ROWS(*cell or range*)

ROWS returns the number of rows in *range*. ROWS returns 1 for cell references.

Examples:

ROWS(A1:Z45) = 45.00

ROWS(All) = 9999

S

S(range)

range = a valid range reference

S returns the string value in the cell in the upper left corner of *range*. S returns ERR if you specify an invalid *range*. S returns an empty string, if the cell does not contain a string value.

Examples:

S(A1..B2)

SEARCH

SEARCH(*substring*,*searchstring*,*column*)

substring = a valid string

searchstring = a valid string

column = a positive integer

SEARCH returns the position of *substring* in *searchstring*. Search begins at *column* and continues to the end of the string. Specify control characters in the substring by prefixing them with the tilde character (~). SEARCH interprets, "~J" as Control-J. To find an actual tilde character, use "~~".

SEARCH returns ERR if no match is found, if the substring is a null string (""), or if the starting column is less than 1.

Note: SEARCH performs a case-insensitive search.

Examples:

SEARCH("Lucid 3-D for Windows","Windows",6) = 15.00

SEARCH(A1,A2,10)

SECOND

SECOND(*timestamp*)

timestamp = a positive integer less than 86,400 representing the number of elapsed seconds from the beginning of the day. You can use the TIME or NOW functions to produce *timestamp* or enter it as a number.

SECOND gives the second number (0-59) of *timestamp*.

Examples:

SECOND(34567) = 7.00

SECOND(F4)

SECONDS

SECONDS(*timestamp,timestamp*)

timestamp = a positive integer less than 86,400 representing the number of elapsed seconds from the beginning of the day. You can use the TIME or NOW functions to produce *timestamp* or enter it as a number.

SECONDS returns the number of seconds difference (including the fractional component) between the first and second timestamps. SECONDS returns ERR if either of the timestamps is out of range.

Examples:

SECONDS(6534,4323) = 2211.00

SECONDS(B3,D4)

SIGN

SIGN(X)

X = a numeric value

SIGN returns one (1.00) if the sign of X is positive, zero (0) if X is equal to zero (0), and -1.00 if X is negative. SIGN returns ERR if X is not numeric.

Examples:

SIGN(-50) = -1

SIGN(455) = 1

SIGN(A8)

SIN

SIN(X)

X = a numeric value

SIN returns the sine of the angle X (in radians). Lucid 3-D includes the radians() and degrees() functions to convert between the two angle measurements.

Examples:

$$\text{SIN}(\text{PI}()/4) = 0.71$$

$$\text{SIN}(\text{B2})$$

$$\text{SIN}(\text{C1}/\text{C2})$$

SINH

SINH(X)

X = a numeric value

SINH returns the hyperbolic sine, the inverse sine of the angle X (in radians). Lucid 3-D includes the radians() and degrees() functions to convert between the two angle measurements.

Examples:

SINH(PI()) = 11.55

SINH(C22)

SLN

SLN(*Cost, Salvage, Life*)

cost = purchase price of the asset

salvage = expected value of the asset at the end of its useful life

life = number of periods for that the asset is useful

SLN is the straight-line method of depreciation of a capital asset. SLN returns the loss for any one period during the life of an asset. With SLN, each year or period's depreciation is the same throughout its life.

Examples:

1. Equipment purchased for \$500,000, lasting 10 years and worth \$50,000 when sold:
SLN(500000,50000,10) = 45000.00
2. Equipment purchased for \$100,000, worth \$30,000 at the end of 5 years:
SLN(100000,30000,5) = 14000.00

SQRT

SQRT(X)

X = a numeric value greater or equal to zero.

SQRT returns the square root of X . The square root is the number that, when multiplied by itself, equals X . SQRT(9) is 3 because $3*3=9$.

SQRT returns ERR, if X is negative.

Examples:

SQRT(16) = 4

SQRT(B5)

STD

STD(*list*)

list = cells, ranges, or expressions

STD returns the standard deviation of its list of values, cell references, ranges, and expressions. The standard deviation measures the disbursement of the numbers in the list around the average of those numbers. If you take the list as a distribution, the average describes the central value. The standard deviation represents the width of the distribution.

The smaller the standard deviation, the closer the numbers in the list are to each other. If all the numbers in the list are identical, the standard deviation is zero.

STD represents the population standard deviation as opposed to the sample standard deviation. See the STDS function for sample standard deviation. The list can consist of ranges, values, and formulas. STD is actually the square root of the VAR function.

Examples:

STD(1,2,3,4,5) = 1.41

STD(C1,D1,Totals)

STDS

STDS(*list*)

list = cells, ranges, or expressions

STDS returns the standard deviation of sample data in a list of values. The *list* can contain cell references, ranges, and expressions. The standard deviation measures the disbursement of the numbers in the list around the average of those numbers. If you take the list as a distribution, the average describes the central value. The standard deviation represents the width of the distribution. The smaller the standard deviation is, the closer the numbers in the list are to each other. If all the numbers in the list are identical, the standard deviation is zero. See the STD function to find standard deviation for the population. STDS is considered more accurate when only a portion of the population is available for calculations.

STDS returns the square root of the VARS function.

Examples:

STDS(1,2,3,4,5) = 1.58

STD(A1:A5)

SUBST\$

SUBST\$(string, oldsubstring, newsubstring {,instance})

string = a valid string

oldsubstring = a valid string

newsubstring = a valid string

instance = a positive integer

SUBST\$ returns a string consisting of *string* with one or more occurrences of *oldsubstring* replaced by *newsubstring*.

If you include *instance*, SUBST\$ replaces the *instance* occurrence of *oldsubstring*. If you omit *instance* SUBST\$ replaces all occurrences of *oldsubstring*. SUBST\$ returns *string* if *instance* exceeds the number of occurrences of *oldsubstring*.

SUBST\$ returns ERR if you include empty strings for *string* or *oldsubstring*; or if *instance* is negative.

Note: SUBST\$ performs a case-sensitive search.

Examples:

SUBST\$("Lucid 3-D for DOS","DOS","Windows") = "Lucid 3-D for Windows"

SUBST\$(A1,A2,A3,4) locates the fourth instance of A2 in A1 and replaces it with A3.

SUM

SUM(*list*)

list = cells or ranges containing numbers to be totaled

SUM calculates the sum of a list of values and displays the total.

The SUM function accepts a list of expressions, constants, cell references, or range designations. Separate each cell reference or range designation by commas. You can mix expressions, combine cells, operators, and numbers.

SUM ignores cells containing labels.

Examples:

SUM(A5:C7)

SUM(A5:C7,D4,TOTAL)

SUM(A2,A3,A4,A5,A6)

SUM(A5:C7,D8:F11,8)

SUM(B4-1,B3+B2)

SUM(5-4,3*3)

SUMPRODUCT

SUMPRODUCT(*range1,range2*)

range = valid range references of the same dimensions

SUMPRODUCT returns the dot product of two arrays in *range1* and *range2*. The arrays must contain the same number of rows and columns.

SUMPRODUCT multiplies the values of the cell in the upper left corner of *range1* by the value of the cell in the upper left corner of *range2*. It adds that product to the product of the cell in the next row or column of the ranges. SUMPRODUCT repeats this multiplication and addition until it multiplies the values of the cells in the lower right corners of the ranges.

SUMPRODUCT skips cells that contain nonnumeric values. SUMPRODUCT returns an error if the ranges contain a different number of rows or columns.

SYD

SYD(Cost,Salvage,Life,Period)

cost = the asset's purchase price

salvage = the expected value of the asset at the end of its useful life

life = the number of periods that the asset remains useful

period = the depreciation period

SYD returns sum of years digits depreciation. SYD, like the function DDB, calculates a larger depreciation in the early years of an asset's life and smaller amounts near the end.

With SYD, the fractional depreciation in any year equals the number of years remaining divided by the sum of the years. A five-year life means remaining years divided by 1+2+3+4+5, or remaining years/15. The first year has a depreciation fraction of 5/15th, meaning 1/3rd of the depreciation occurs in that year. The fifth year would be 1/15th of the depreciation.

Examples:

1. Depreciation for first year, \$500,000 purchase price, \$50,000 salvage value after 5 years:
SYD(500000,50000,5,1) = \$150,000
2. Same example in the third year:
SYD(500000,50000,5,3) = \$90,000

TAN

TAN(X)

X = a numeric value

TAN returns the tangent of the angle X (in radians).

Lucid 3-D includes the `radians()` and `degrees()` functions to convert between the two angle measurements.

Examples:

TAN(PI()/4) = 1.73

TAN(C2)

TANH

TANH(*X*)

X = a numeric value

TANH returns the inverse tangent of the angle *X* (in radians). Lucid 3-D includes the radians() and degrees() functions to convert between the two angle measurements.

Examples:

$$\text{TANH}(\text{PI}()/3) = .78$$

$$\text{TANH}(C5)$$

3DLOOKUP

3DLOOKUP(*range, layercondition, layerkey, rowcondition, rowkey, columncondition, columnkey*)

range = the range

layercondition = a comparison operator

layerkey = a numeric value or string

rowcondition = a comparison operator

rowkey = a numeric value or string

columncondition = a comparison operator

columnkey = a numeric value or string

3DLOOKUP is a three dimensional table lookup function. It returns a cell reference at the intersection of three separate searches and each of the searches contributes a spreadsheet attribute to the resulting cell reference. The searches that 3LOOKUP performs are:

- It searches for *layerkey* based on *layercondition*, in all cells in the upper left corner of all layers in the *range*. This is the first search and the cell that satisfies the condition contributes the layer component of the resulting cell reference.
- It searches for *rowkey* based on *rowcondition*, along the leftmost column in the top layer of the of range. This is the second search and the cell that satisfies the condition contributes the row component of the resulting cell reference.
- It searches for *columnkey* based on *columncondition*, in the top row of the top layer in *range*. This is the third search and the cell that satisfies the condition contributes the column component of the resulting cell reference.

You can specify a string or numeric value or a cell reference containing a string or numeric value, for *layerkey, rowkey, or columnkey*. You may include any of the following comparison operators for condition: "<", "<=", "=", ">=", or ">".

If 3DLOOKUP locates a match for all three conditions it returns the cell at the intersection of the three cells that satisfy the three conditions. 3DLOOKUP skips empty cells and cells that contain a different data type than *key*. 3DLOOKUP returns ERR if it fails to locate a cell that satisfies any of the conditions and keys.

Examples:

3DLOOKUP(A::A3:N::E10, "<", 0, ">", 0, "=", 0)

Searches the cells in B::A1 through N::A1 for a negative value, the cells in A::A3 through A::A10 for a positive value, and the cells in A::A3 through A::E3 for a value of 0. If 3DLOOKUP locates a negative value in cell C::A3 during the first search, and a positive value in cell A::A5 during the second stage of the search, and a value of 0 in the cell A::E3 during the third stage of the search, it returns the cell at the intersection of those three cells. That cell is C::E5 because it found the match for the layer condition in layer C, the match for the row condition in row 5 and the match for the column condition in column E.

TERM

TERM(payment,rate,future value)

payment = the amount to pay per period

rate = the fixed interest rate per period, expressed as a decimal

future value = the value the investment will reach

TERM calculates the number of periods to accumulate *future value*, with *payment* amount and interest *rate*.

Examples:

1. How long will it take to accumulate \$50,000, at 8.25% interest, adding \$2,000 per year?
TERM(2000,.0825,50000) = 14 years
2. Number of \$500 payments needed to reach \$10,000 at 9.5% interest:
TERM(500,.095,10000) = 12 payments

TIME

TIME(*hour,minute,second*)

hour = an integer between 0 and 23

minute = an integer between 0 and 59

second = a numeric value between 0 and 59

TIME returns the number of elapsed seconds from the beginning of the day, based on *hour*, *minute*, and *second*. *Second* may contain a fractional value. TIME produces a timestamp to use in other time functions.

Examples:

TIME(11,30,15) = 41415.00

TIME(18,0,0) = 64800.00

TIME\$

TIME\$(*timestamp*,*rollover*{,*decimals*})

timestamp = a positive integer less than 86,400 representing the number of elapsed seconds from the beginning of the day. Use the TIME or NOW functions to produce *timestamp* or enter it directly as a number.

rollover = the numbers 12 or 24

decimals = a positive integer between 0 and 10

TIME\$ returns the value of *timestamp* expressed as a string value representing the time of day based on a 12 or 24 hour clock. If *rollover* contains 12, TIME\$ appends the "am" or "pm" designator to the timestring.

Examples:

TIME\$(49879,12) = 01:51:19 pm

TIME(C3)

TIMEVALUE

TIMEVALUE(*timestring*)

timestring = a string value containing a time, or a timestamp converted to a timestring with the TIME\$ function

TIMEVALUE converts *timestring* to a timestamp for use by other Lucid 3-D time functions. *timestring* can include an am or pm designator, and fractions of a second.

Examples:

TIMEVALUE("01:51:19 pm") = 49879.00

TIMEVALUE(A2)

TODAY

TODAY()

TODAY returns the number of days (a datastamp) from the beginning of the Anno Domini calendar (i.e. January 3, 0001 A.D. = 2 days) to the current date.

TODAY does not require a parameter, but you must include parentheses.

TRIM\$

TRIM\$(*string*)

string = a valid string

TRIM\$ removes all extraneous spaces from *string*, except for single spaces between words. TRIM\$ returns ERR if you enter an invalid string.

Examples:

TRIM\$(" Lucid 3-D For Windows ") = "Lucid 3-D for Windows"

TRIM\$(A21)

TRUE

TRUE()

TRUE is logical value -1.00. The only one other logical state is FALSE, whose logical value is (0.00). When used with the NOT function, NOT(TRUE) is FALSE and equals 0.00. NOT(FALSE) is TRUE and equals -1.00.

Using TRUE and FALSE improves readability of formulas. It is easier to understand a formula like IF(A1=TRUE(),B1,C1) than the formula IF(A1=-1,B1,C1).

TRUE does not require a parameter, but you must include the parentheses.

TRUNC

TRUNC(*X*,*decimals*)

X = a numeric value

decimals = an integer value in the range -20 to 20

TRUNC returns the value of *X*, after changing digits to the right or left of the decimal point to 0. If *decimals* contains a positive integer, TRUNC returns a value that contains *decimals* digits to the right of the decimal point.

TRUNC returns ERR if *decimals* is not an integer value or if it is greater than 20 or smaller than -20.

Examples:

TRUNC(1234.5678,1) = 1234.50

TRUNC(1234.5678,-1) = 1230.00

TRUNC(B3)

TYPE

TYPE(*expression*)

expression = a numeric or string value, a range or cell reference

TYPE returns an integer indicating the data type of *expression*. Possible return values and their meaning are:

- 1 an empty cell
- 2 a numeric value
- 3 a string value
- 4 a label
- 5 an NA value
- 6 an ERR value
- 7 a range reference

UPPER\$

UPPER\$(*string*)

string = a valid string

UPPER\$ converts all lowercase letters in *string* to uppercase, and ignores numbers. UPPER\$ returns ERR if you enter an invalid string.

Examples:

UPPER\$("Lucid 3-D") = "LUCID 3-D"

UPPER\$(D4)

VALUE

VALUE(*string*)

string = a valid string

VALUE returns *string* as a numeric value. Value ignores leading spaces and tabs in *string*. Value recognizes numeric digits, decimal points, + and - signs, commas, dollar signs, and e or E in the string value.

Value terminates when it encounters the first invalid character in string, and returns the result of the conversion before encountering the invalid characters. VALUE returns ERR if you specify an invalid string.

Examples:

VALUE("132AB") = 132

VALUE(" 1B") = 1

VALUE(C3)

VAR

VAR(*list*)

list = cells, ranges, or expressions

VAR returns statistical population variance of its list of values, references, ranges, and expressions. The variance represents the length of the distribution of values in *list*. A small variance represents numbers that are close together.

Examples:

VAR(2,2,2,2,3,4) = .58

VAR(1,5,6,7,8,20) = 34.47

VAR

VAR(*list*)

list = cells, ranges or expressions

VAR calculates the sample variance of its list of values, cell references, ranges, and expressions.

Like VAR, VARS measures the dispersion of the numbers in the list around the average of those numbers. VARS represents the "sample" variance, as opposed to the "population" variance that VAR provides. The list can consist of ranges, values, and formulas.

Examples:

$$\mathbf{VAR(2,2,2,2,3,4) = .7}$$

$$\mathbf{VAR(1,5,6,7,8,20) = 41.37}$$

VERSION

VERSION()

VERSION returns the current version number of Lucid 3-D for Windows as a number. As improvements are made the Version number increases, as in 2.00, 2.20, 2.55. Your Support Advisor may ask you for this number if you call for technical assistance.

VERSION requires parenthesis.

VERSION\$

VERSION\$

VERSION\$ returns the current version number of Lucid 3-D for Windows as a string value.

VLOOKUP

VLOOKUP(*range,condition,key,layeroffset,rowoffset*)

range = a valid range reference

condition = a comparison operator enclosed in quotes

key = a numeric value or string

layeroffset = a positive integer

columnoffset = a positive integer

VLOOKUP is a one dimensional, vertical table lookup function. It searches for *key* in the leftmost column in *range*, based on *condition*.

You can specify a string or numeric value for *key*, or a cell reference containing a string or numeric value. You may include any of the following comparison operators for *condition*: "<", "<=", "=", ">=", or ">".

Layeroffset and *columnoffset* define the layer and column of the cell VLOOKUP returns. When VLOOKUP locates a cell containing *key* that satisfies *condition*, VLOOKUP returns the contents of the cell that is *layeroffset* layers deeper and *columnoffset* columns to the right of the cell that satisfies the condition. You may include a string or numeric value for *key*.

VLOOKUP skips empty cells and cells that contain a different data type than *key*. VLOOKUP returns ERR if it fails to locate a cell that satisfies *key* and *condition*, if *layeroffset* or *columnoffset* contain negative or non-numeric values, or if *layeroffset* or *columnoffset* generate a cell reference outside of *range*.

Examples:

VLOOKUP(A::A1:D::E10, "<", 100, 1, 2)

Searches the cells in column A of layer A in rows 1 through 10 for a value less than 100. When it locates a value less than 100, it returns the contents of the cell one layer deeper and two columns to the right of the cell that contains the value. For example, if VLOOKUP locates the value 98 in the cell in layer A, row 1, column A, it returns the value in the cell at layer B, row 2, column A.

VLOOKUP(B::B2:E::L10, "<", 0, 0,1)

Searches row 2 of layer B in columns B through L for negative values and returns the contents of the cell immediately to the right of it.

XOR

XOR(*comparison expressions*)

comparison expressions = one or more comparison expressions, separated by commas, that evaluate to TRUE or FALSE

XOR evaluates the expressions you include in *comparison expressions*, and returns TRUE if only one of the expressions evaluate to TRUE. XOR returns FALSE if more than one of the comparison expressions evaluate to TRUE.

Although Lucid 3-D allows you to enter an XOR function into a cell, it is most useful in an IF statement to determine if only one condition is true.

Examples:

XOR(FALSE(),TRUE()) = -1.00 (TRUE)

IF(XOR(FALSE(),FALSE(),TRUE())) = -1.00 (TRUE)

AND(A1,A2)

YEAR

YEAR(*datestamp*)

datestamp = the integer date produced using the DATE, TODAY, or JULIAN functions, or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

YEAR returns the year number from *datestamp*.

Examples:

YEAR(32867) = 90, the year 0090

YEAR(K4)

YEAR(TODAY()) = the current year

YEAR\$

YEAR\$(*datestamp*)

datestamp = the integer date produced using the DATE, TODAY, or JULIAN functions, or any integer between 1 and 3,652,488. It represents the number of days since January 1, 0001.

YEAR calculates the calendar year that an integer date falls in and returns it as a text string.

Examples:

YEAR\$(134987) = 370

YEAR\$(D7)

Keyboard

Function Keys

F1	Help
SHIFT+F1	Case-Sensitive Help
F2	Edit the current cell entry
F3	Edit the current cell's note
F4	Find data in the current spreadsheet
SHIFT+F4	Replace data in the current spreadsheet
CTRL+F4	Close the active spreadsheet/graph window
ALT+F4	Exit Lucid 3-D for Windows
F5	Goto a specific cell address
F7	Find Next
F8	Start range mode, end range mode
F9	Recalculate the current spreadsheet
F10	Enter the menu bar
F12	Save the active spreadsheet to a different location
SHIFT+F12	Save the active spreadsheet
CTRL+F12	Open a spreadsheet in a new window

Keyboard Shortcuts

CTRL+A	Change the alignment of cell contents
CTRL+B	Add borders to cells
CTRL+C	Copy the current selection to the clipboard
CTRL+F	Change font of the current selection
CTRL+N	Change cell numeric formatting
CTRL+P	Change cell colors and background patterns
CTRL+S	Insert specific properties at the current location
CTRL+V	Insert the clipboard at the current location
CTRL+X	Cut the selection and place in clipboard
CTRL+Z	Undo most operations
DEL	Erase the current selection
GREY+	Go down one spreadsheet layer
GREY-	Go up one spreadsheet layer
CTRL+GREY+	Go down one linked file

CTRL+GREY-
CTRL+HOME

CTRL+END

CTRL+RT ARRW

CTRL+LT ARRW

ALT+BKSPC

Go up one linked file

Go to the top left cell of the current spreadsheet

Go to the last occupied cell in the current layer

Scroll one screen right

Scroll one screen left

Undo most operations

Cells

Cells are the main part of a Lucid 3-D spreadsheet for storing and manipulating data.

Active Range

The Active Range is a group of cells in the spreadsheet on which you can perform operations such as formatting, copying and pasting.

Floating Object

A floating object is an embedded drawing, graph or control that can be added to highlight or identify different parts of the spreadsheet.

Title Area

The title area identifies the current spreadsheet file by its file name.

Row Labels

Row labels identify the rows of the spreadsheet. Click on the row label to select all cells in the row. Drag the line between the row labels to increase or decrease the height of the cell. You can select multiple rows by dragging the mouse cursor across multiple row labels.

Column Labels

Column labels identify the columns of the spreadsheet. Click on the column label to select all cells in the column. Drag the lines between the column labels to increase or decrease the width of the cell. You can select multiple columns by dragging the mouse cursor across multiple column labels.

Select All Box

Click on the Select All box to select all cells of the current spreadsheet. All cells, including those on other layers, will be selected.

Tabs

Tabs identify the different layers in the spreadsheet. Use the Name Layers command (Tools menu) or click the right mouse button on a tab to change the name and colors of tabs.

Send File

Use this dialog to select the file you wish to send to the remote computer.

Receive File

Use this dialog to enter or select the file name you wish to save the received file with.

Save spreadsheet message

You have attempted to close a spreadsheet or exit Windows without saving changes made to it.

To close the spreadsheet without saving changes

- Choose the No button.

To close the spreadsheet and save the changes

1. Choose the Yes button.
2. If this is the first time to save the spreadsheet, supply a file name in the Save As dialog box.
3. Choose OK.

To cancel the close command

- Choose the Cancel button.

Invalid function format

Can't save spreadsheet

An attempt to save the spreadsheet has failed. Check the free space on the requested drive, deleting any unnecessary files.

Can't paint borders

Error in formula

You have made an error in typing in the formula. You can either edit your formula entry, or enter the function as a label. If you enter the function as a label, no calculations will be performed by this formula.

To enter the formula as a label

- Choose the Yes button.

To edit the formula

- Choose the No button.

Copy and paste region different shapes

You have tried to paste the clipboard to a range that is either too small, too large, or the wrong shape. Check the paste area and try again.

Can't find file

Lucid 3-D for Windows can not find the file that has been requested to be open. The file may be contained on another drive or directory. Ensure the path is correct and try the command again.

Revert to a different version

You have made changes to a spreadsheet and tried to open it again, losing any unsaved changes.

To load the file version on disk

- Choose the OK button.

To cancel the open command

- Choose the Cancel button.

File load error

An error has occurred loading the requested file. Make sure that the file type is correct and that the file is a file that Lucid 3-D for Windows can open.

Save changes in [spreadsheet]?

You have made changes to a spreadsheet since the last time you saved the spreadsheet. By choosing the Close or Exit from the File menu, Close All from the Window menu or exiting Windows you are closing the spreadsheet without saving the changes.

To save the changes to before closing or quitting

- Choose the Yes button.

To save changes to all spreadsheets

If you chose the Exit command from the File menu or the Close All command from the Window menu, you are closing all spreadsheets that are currently open.

- Choose the Yes to All button.

To discard changes and continue closing or quitting

- Choose the No button.

To cancel the close or quit operation and return to the active spreadsheet

- Choose the Cancel button.

Save Macros

You have added or changed a macro in the hidden macro sheet (MACROS.LCM). Exiting Lucid 3-D after adding or editing a macro will cause this message to appear.

To save changes to the macro sheet

- Choose the Yes button.

To discard changes made to the macro sheet.

- Choose the No button.

To cancel the exiting of Lucid 3-D

- Choose the Cancel button.

Paste same dimension

The area you are trying to paste has the same location as

Not version 1

The file you have selected is a connectivity pack that is too new to be supported by this version of Lucid 3-D. Upgrade your version of Lucid 3-D before installing it.

Corrupt pack

The file you have selected is not a valid connectivity pack or has become corrupted. Try re-installing the pack from diskette and retry the operation.

Connectivity pack not found

The connectivity pack you have selected is no longer installed or is missing. Be sure the file is still accessible on the same path it was installed from or try re-installing it.

Connectivity pack not valid

The file you have selected is not a valid connectivity pack. Try re-installing the pack from diskette and retry the operation.

Already installed

The connectivity pack you are installing is already installed. You can install the same pack more than once if you wish to use more than one set of parameters in the setup of the pack. It will be named a different name than the pack already installed.

To install the pack using a different setup

- Choose the Yes button.

To cancel installation of the pack

- Choose the No button.

To cancel installation of the pack and return to Lucid 3-D

- Choose the Cancel button.

Install pack

Requesting confirmation to install the requested connectivity pack

To install the pack

- Choose the Yes button.

To cancel installation of the pack

- Choose the No button.

Can't open file

The file requested cannot be read and/or translated properly. Be sure the file is of the correct type for the file extension supplied and retry the operation.

Unexpected end of line

The file contained a line that was too short to be understood.

Test true on playback?

You have selected to insert an IF statement in a recording macro.

To insert the IF statement in the macro

- Choose the Yes button.

To cancel inserting the IF statement in the macro

- Choose the No button.

Replace existing file?

You are attempting to save a file to the same name and location of an existing file.

To overwrite the file on disk

- Choose the Yes button.

To cancel the save

- Choose the No button.

Nothing to add

You have selected the Add button with nothing to add. Add your item before pressing the Add button.

Nothing selected

You have selected OK with nothing selected. try selecting an item first.

Choose a file

Use this dialog to choose the file you wish to send or receive.

Unable to open communications port

Windows has reported to Lucid 3-D that it is unable to open the requested communications port. This is usually because that port doesn't exist on your hardware or is not operating correctly. Be sure that the port you have specified the correct port, the port settings are correct or try another port.

Insufficient memory

You have attempted to perform an operation that requires more memory than is currently available. Close any applications that you are currently not using and retry the operation.

Unable to initialize

Windows has reported to Lucid 3-D that it is unable to initialize the requested communications port. This can be caused by another program or process using the port at this time. Close all other tasks that might be using the port and try again.

Communications driver error

Windows has reported to Lucid 3-D that it is unable to open the requested communications port. This is likely due to an error in the driver. This occurs with add-on drivers or may be caused by your driver being corrupt. Try re-installing your driver or Windows and retry the operation.

Transfer complete

The file transfer you have requested is complete.

Transfer canceled

The file transfer has been canceled by either you or the remote unit.

Error opening file

An error has occurred while attempting to open the requested file. Make sure the file location and the file type are correct.

Windows timer request failed

This operation requires a timer to complete the operation. Windows reports that it cannot supply a timer at this time. Try closing all other applications or restart Windows and retry the operation.

Edit Series Color

Use the Edit Series Color dialog to change the color and pattern of an individual graph series.

Dialog Box Options

- Series Color Select the color for the graph series.
- Series Style Select the series for the pattern style series.

Spreadsheet too big

The spreadsheet you have attempted to load is too large for Lucid 3-D. Try closing any open applications that are not necessary and try again.

Unable to 3-D link

Lucid 3-D can't establish a link the requested file. Make sure the file name in the REF function is a valid file name.

Invalid cell for 3-D link

The cell reference for the requested 3-D link is not valid for a 3-D linked cell. Make sure the cell reference exists in the attempted 3-D link spreadsheet.

Unable to return to parent spreadsheet

The parent spreadsheet for this 3-D linked spreadsheet is no longer a valid file. Make sure the file name and location are correct.

Add Lucid Function Pack

You have requested that a Function Pack be added to Lucid 3-D.

To install the Function Pack

- Choose the Yes button.

To cancel the installation of the Function Pack

- Choose the No button.

Invalid function pack

The Function Pack you have attempted to install is corrupt or is a later version. Be sure the file is a valid Lucid 3-D Function Pack by re-installing from diskette. If this doesn't work, you may need a more recent version of Lucid 3-D.

Function pack already installed

You have attempted to install a Function Pack that is already installed. There is no need to reinstall this Function Pack. To install a more recent version, first remove the function pack and then install the new one.

Could not install function pack

Lucid 3-D can't install the requested Function Pack. Make sure the Function Pack is a valid Lucid 3-D Function Pack and try again.

Function pack not found

The function pack that was installed is now missing or has become corrupt. You should re-install the pack from diskette.

Range transpose failed

The requested Range Transpose failed.

Invalid tab name

The tab name you entered is not a valid tab name. Make sure you haven't already named another tab with the same name.

3-D Links

Use the 3-D Links dialog box to select a file from the list of possible choices.

Dialog Box Options

Links

Select the file to open.

Goto

Choose Goto to open the currently select file.

Assign Macro

You have requested that a macro be assigned to a push button.

To assign the macro to the push button

- Choose the Yes button.

To cancel the assignment of the macro to the push button

- Choose the No button.

Unable to print to file

You have attempted to print to a file. Lucid 3-D can't print to this file. Check the file and path name to make sure it is a valid location. Also, the disk you have requested may not have enough free space.

Range too large to graph

The range you have selected is too large to graph. Select a range with a smaller quantity of cells.

Cell editor not available

There are no sheets open at this time. To insert a function into a sheet, first open the desired sheet and retry the operation.

Remove pack - Are you sure?

You have attempted to remove a Connectivity Pack.

To remove the Connectivity Pack

- Choose the Yes button.

To cancel the removal

- Choose the No button.

Remove pack - Are you sure?

You have attempted to remove an installed Connectivity Pack.

To remove the Connectivity Pack

- Choose the Yes button.

To cancel the removal

- Choose the No button.

Abort transfer - Are you sure?

This will cancel the transfer of your file.

To abort the transfer

- Choose the Yes button.

To resume the transfer

- Choose the No button.

File possibly corrupt in the SF Unit

Even though the transfer has been canceled, the SF Unit may have saved your file as though it was complete. If so, you should immediately delete this file from the SF Unit. **DO NOT** attempt to open this file, as this may corrupt all your data in the SF Unit. It will be necessary to try the transfer again.

Unable to complete transfer

Lucid 3-D was not able to complete the transfer of files. Check all connections and try the transfer again.

Couldn't find (string)

Lucid 3-D for Windows couldn't find the string using the Find command (Edit menu).

Replace x instances

Lucid presents this dialog box to inform you how many instances of the find string it found and replaced with the replace string using the Replace command (Edit menu).

Unable to paste data from clipboard

An attempt to paste information from the Clipboard has failed. Copy the information and try pasting again.

Exception error

Lucid 3-D for Windows encountered a error it can't recover from. This could be the result of insufficient memory. Try closing other applications and retry the operation. To report this problem please call Lucid Product Support at (214) 994-8101.

Value not in valid range

The value in this field you have entered is not in the range of acceptable values. Re-enter the value.

Not a valid number

The value in this field must be a numeric type. Be sure you have entered a valid numeric type.

Field is required

This field requires a value to be entered. You must not leave it unchanged.

Not a valid date

This field requires a valid date. Be sure you have entered a valid date.

Not a valid time

This field requires a valid time. Be sure you have entered a valid time.

Blanks are not allowed

This field can not be left blank. Enter a value before proceeding.

Partial entries are not allowed

This field is incomplete. Be sure you have entered the value completely.

