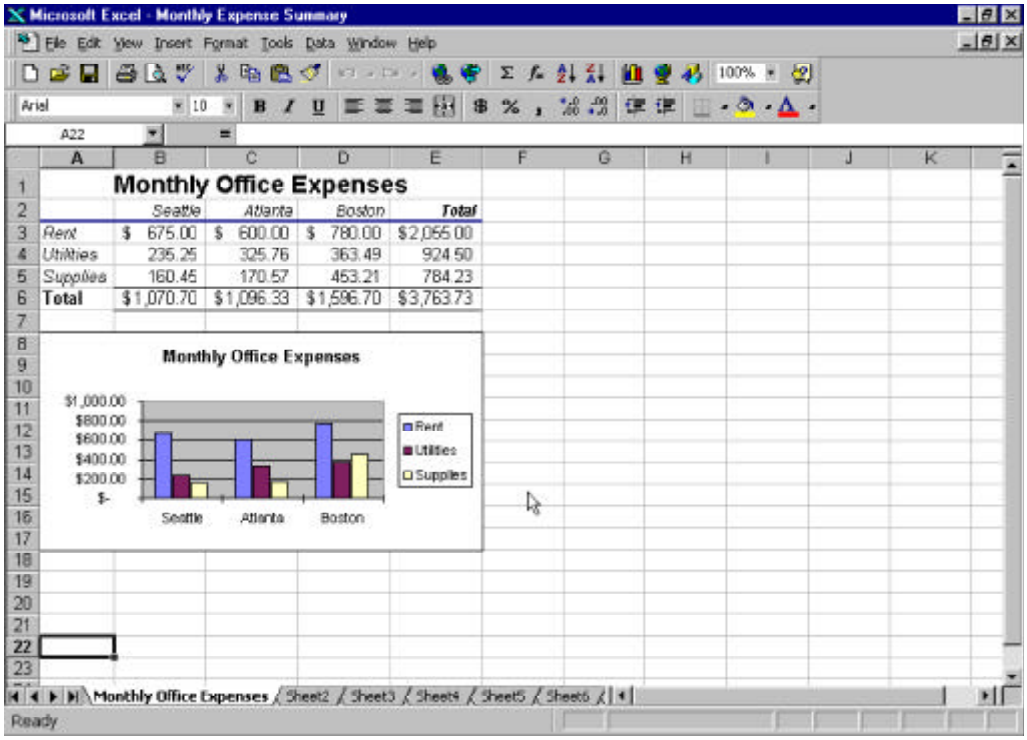
Electronic Spreadsheets - Microsoft Excel



Desired Outcomes

- Student understands Excel workbooks and worksheets
- Student can navigate in an Excel workbook and worksheet
- Student can use toolbars and icons in Excel
- Student understands
  - values
  - formats
  - formulas
  - absolute and relative cell referencing
  - built-in functions
  - order of operations
- Student can create a basic spreadsheet
- Student can print a spreadsheet or part of a spreadsheet

Excel

Microsoft Excel is an application program called an electronic spreadsheet. Electronic spreadsheet programs allow you to organize data, perform calculations, make decisions, and present your data in a table or graph. When Excel starts it opens a document window called a workbook. A workbook is based on a template. A workbook is composed of worksheets. Each worksheet has 256 columns running vertically and intersecting to form **cells** with 16,384 rows running horizontally. Cells are referred to by their column heading and their row number. In Figure 12-1 the active cell is B6. Values are placed in cells as text, numbers, or formulas.

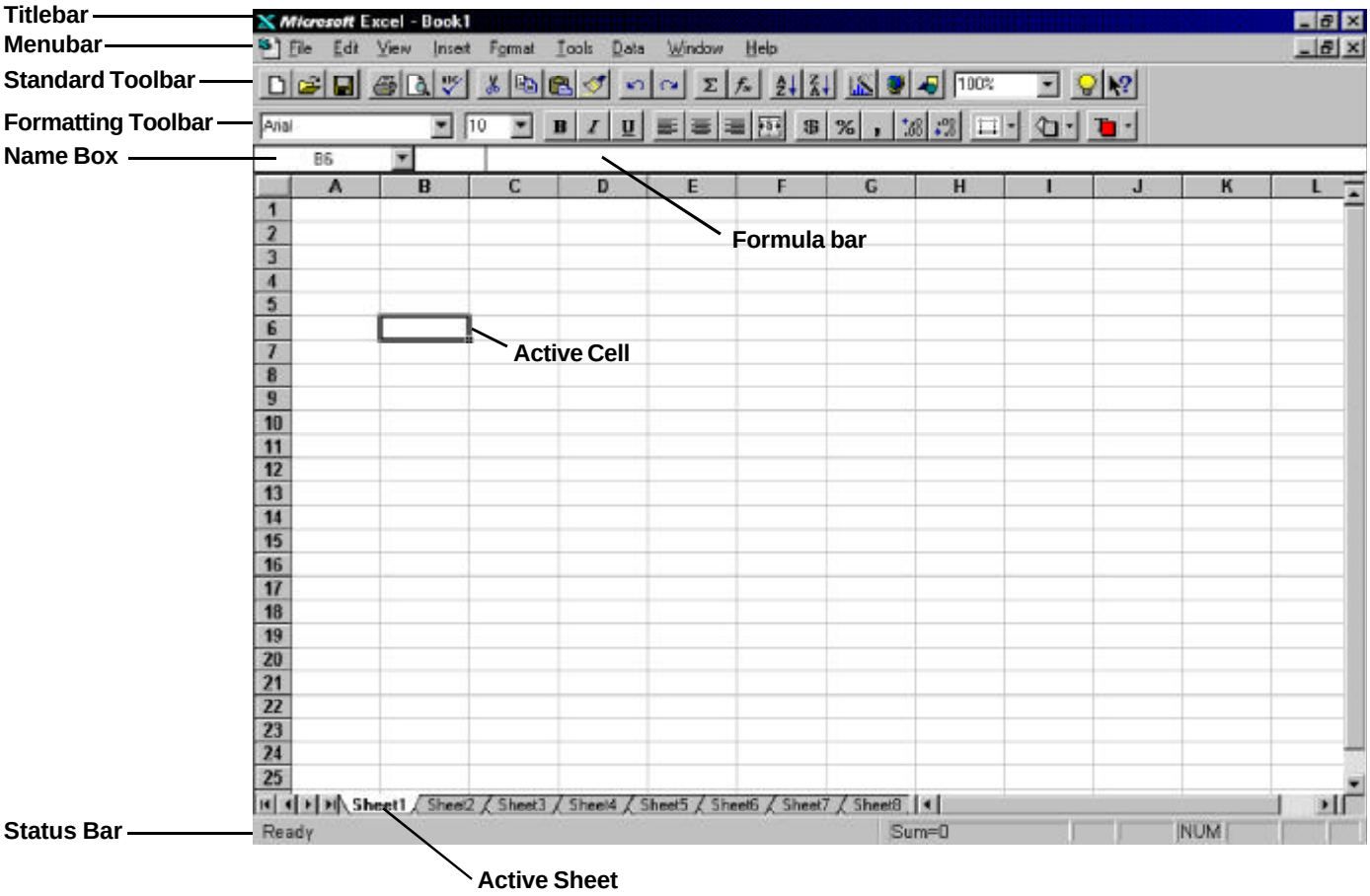


Figure 12-1. Microsoft Excel screen.

Selecting a Cell

To enter data into a cell, you first must select it. The easiest way to select a cell (make it active) is to use the mouse to move the block plus sign to the cell and click.

Navigating in a Worksheet Using the Keyboard

Arrow Keys	move one cell in the direction of the arrow
Page Up/Down	scrolls one screen up or down
Ctrl + Home	move to the top left cell
Ctrl + End	move to the bottom right cell of the worksheet
Ctrl + Tab	cycles through workbooks
Ctrl + Page Up/Down	flips through worksheets

Selecting a Range of Cells

To select a range of cells click on the first cell in the range and drag to the last cell in the range and release the left mouse button.

- Hold down the Shift key and move with the arrows.
- Use the Ctrl key to simultaneously select cells that are not contiguous.
- Click on row or column heading to select the entire row or column.

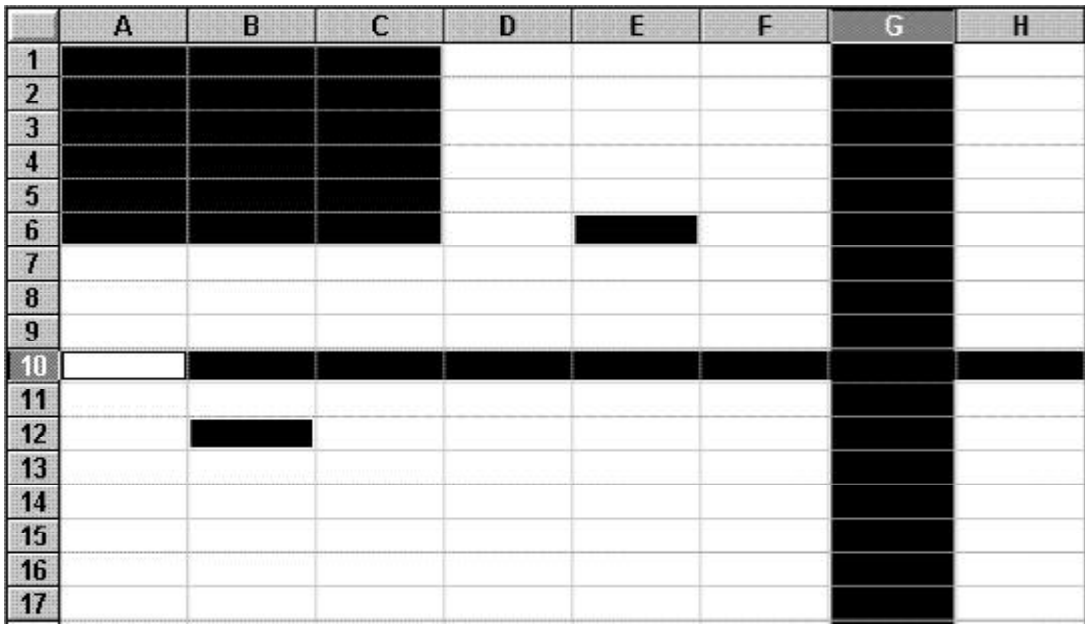


Figure 12-3. Selecting cells in a worksheet.

Entering and Editing Data

Entering Data

1. Click on the cell where you want to enter a value.
2. Type in the value.
3. Press the Enter key. Press the Esc key to cancel the entry.

Editing Data
Double-click on a cell.
Select a cell and press “F2”.
Click in the Cell Content Bar.

Delete
Excel stores both the value entered into a cell and the formatting assigned to the cell.

To delete the cells formatting:
Click on the Edit menu, point to Clear, point to Formats, and click on it.

To delete the contents on a cell :
Select the cell and press the delete key. Cells store contents separately from cell formats. Using the delete key will only delete the cells content and not the cell format.

Formatting
Click in the cell you want to format to make it the active cell.
Click on the Format menu and click on the Cells command.

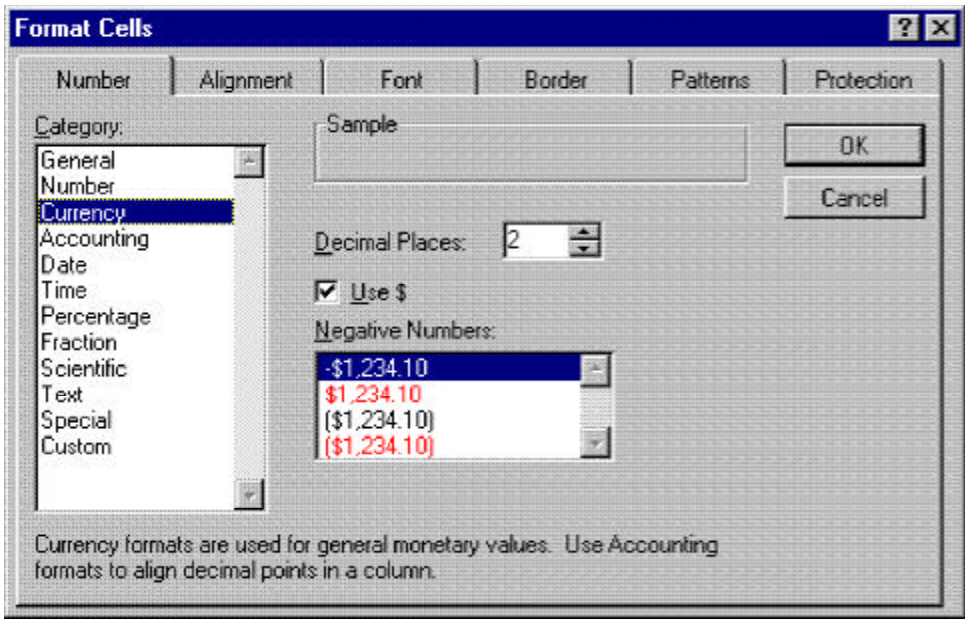


Figure 12-4. Format Cells dialog box.

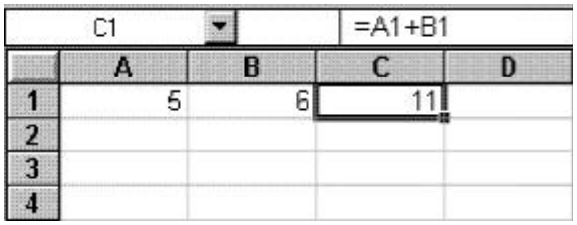
Excel has several options for formatting a cell. If a cell has been formatted for currency it will display according to the style of currency format selected. Formatting cells provides consistency for displaying the same type of data in a spreadsheet. It can also save you time when entering values into a cell, for example, the currency style automatically places a dollar sign symbol in front of the number being entered into the cell.

Formulas

The power of an electronic spreadsheet is utilized by the use of formulas. Without formulas a spreadsheet is just a grid with numbers entered in it.

Basic Formula Structure
All formulas start with the symbol " = " .

Example:
Type the following values into a worksheet:
Cell A1: 5
Cell B1: 6
Cell C1: =A1 + B1



Notice that cell C1 displays the result of adding cell A1 to cell B1. The formula displays in the formula bar.

Order of Operations:

1. Items in parentheses ( )
2. Exponents, ^
3. Multiplication, * and Division, /
4. Addition, + and Subtraction, -

[ ] = 5 + 10 * 4

[ ] = (5 + 10) * 4

Use the sample spreadsheet shown in Figure 12-5 to practice with order of operations. To toggle between a value spreadsheet and a formula spreadsheet use the keyboard combination Ctrl + ` . The ` key is on the top row to the left of the 1 key.

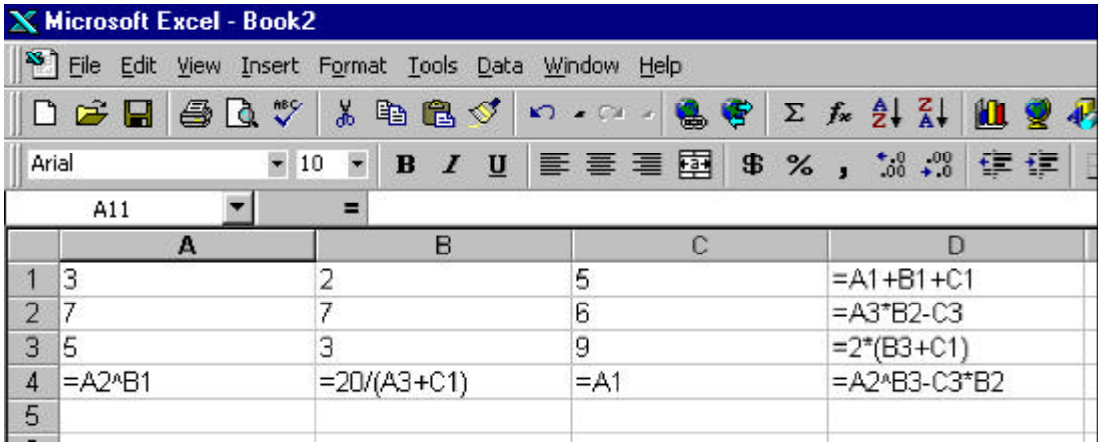


Figure 12-5. Practice spreadsheet.

Copying Formulas
When you copy a formula, cell references adjust.

Row numbers change when the formula is copied or moved up or down the rows.

	A	B	C
1	12	6	=A1+B1
2	10	9	=A2+B2
3	10	-5	=A3+B3

Column letters change when the formula is copied or moved across columns.

	A	B	C
1	12	6	10
2	10	9	-5
3	=A1+A2	=B1+B2	=C1+C2

Absolute vs. Relative
References that adjust as described above are called relative. You can make an absolute reference that does not change. Simply place a $ character in front of any reference that should not adjust.

	A	B	C
1	tax rate	1.0725	
2	Price	Shipping	Total
3	12	2	=(A3+B3)*B1
4	25	4	=(A4+B4)*B1
5	50	6	=(A5+B5)*B1
6	75	8	=(A6+B6)*B1

Formula Worksheet

	A	B	C
1	tax rate	1.0725	
2	Price	Shipping	Total
3	12	2	$ 15.02
4	25	4	$ 31.10
5	50	6	$ 60.06
6	75	8	$ 89.02

Value Worksheet

Functions

Functions are common formulas found in business, accounting and math that are built in to Excel.
Functions return a value.
You can use cell references in functions.

B7 =SUM(B3:B6)

	A	B	C	D
1	**Travel Expenses**			
2		**Austin**	**SF**	
3	Transportation	468		
4	Hotel	180		
5	Food	64		
6	Misc.	10		
7	**Total**	$ 722.00		
8				

The SUM( ) function is used in cell B7.

Practice Creating a Spreadsheet

In this example you will create a spreadsheet that will calculate the monthly payment for a loan needed to purchase a new computer.

Procedure

1. Start Excel.
2. Enter the following values into the cells indicated. If you make a mistake, double-click in the cell and change the value.

	A	B	C
1	Computer Loan Spreadsheet		
2			
3			
4	Loan Amount	3500	3500
5	Interest	0.0725	0.18
6	Terms in Months	24	24
7			
8	Monthly Payment	=PMT(B5/12,B6,B4)	=PMT(C5/12,C6,C4)

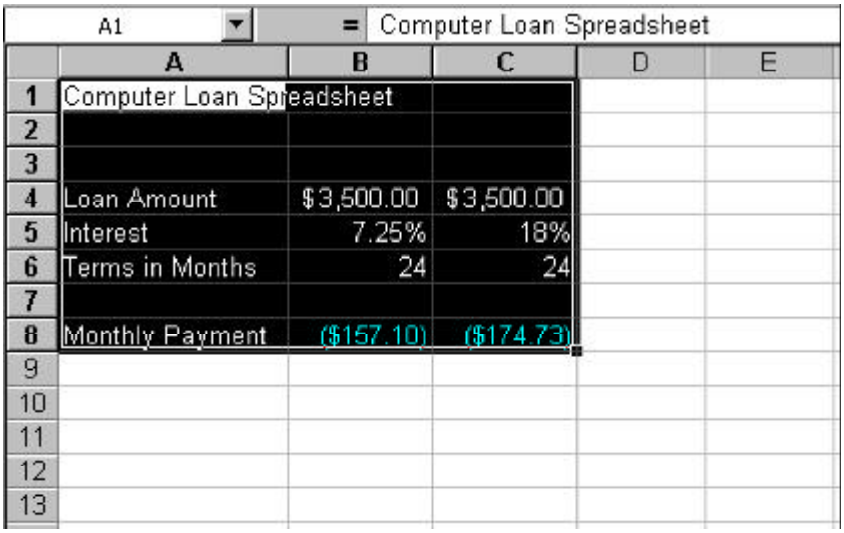
3. Format the column width so that the value entered displays. A quick way to widen a column width is by right-clicking on the column heading and selecting the Column Width command. Enter a number for the column width that is large enough to see the cells value.

	A	B	C
1	Computer Loan Spreadsheet		
2			
3			
4	Loan Amount	$3,500.00	$3,500.00
5	Interest	7.25%	18%
6	Terms in Months	24	24
7			
8	Monthly Payment	($157.10)	($174.73)

The value worksheet displays the calculated monthly payment. This spreadsheeet uses the built-in formula, PMT ( ).

4. **Printing the Spreadsheet**
   Excel has several options for printing a worksheet. You can print the entire worksheet or a portion of it. To print the value worksheet created in step 3:

A. Click in cell A1 and hold down the left mouse button while dragging to cell C8. Release the mouse button and the cell range A1:C8 will be highlighted.



B. Click on the File menu and then click on Print. In the Print what section of the Print dialog box select the radio button Selection, then click on OK.