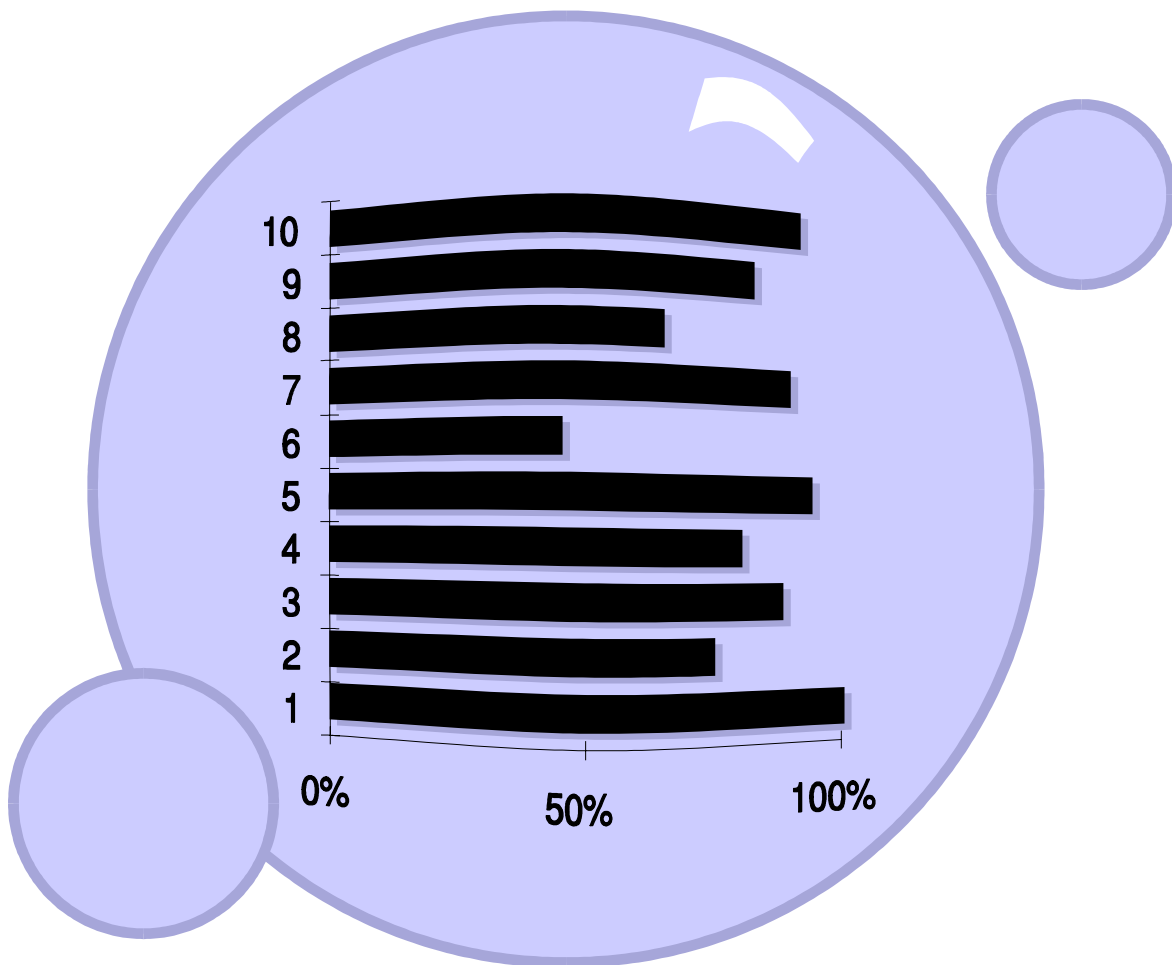


# Introduction to Excel 2003 for Windows

In this introduction to Excel workshop guide, you will be provided with a partially completed Excel 2003 workbook file.

The basics of a spreadsheet, as well as cell references and reference operators, will be briefly explained.

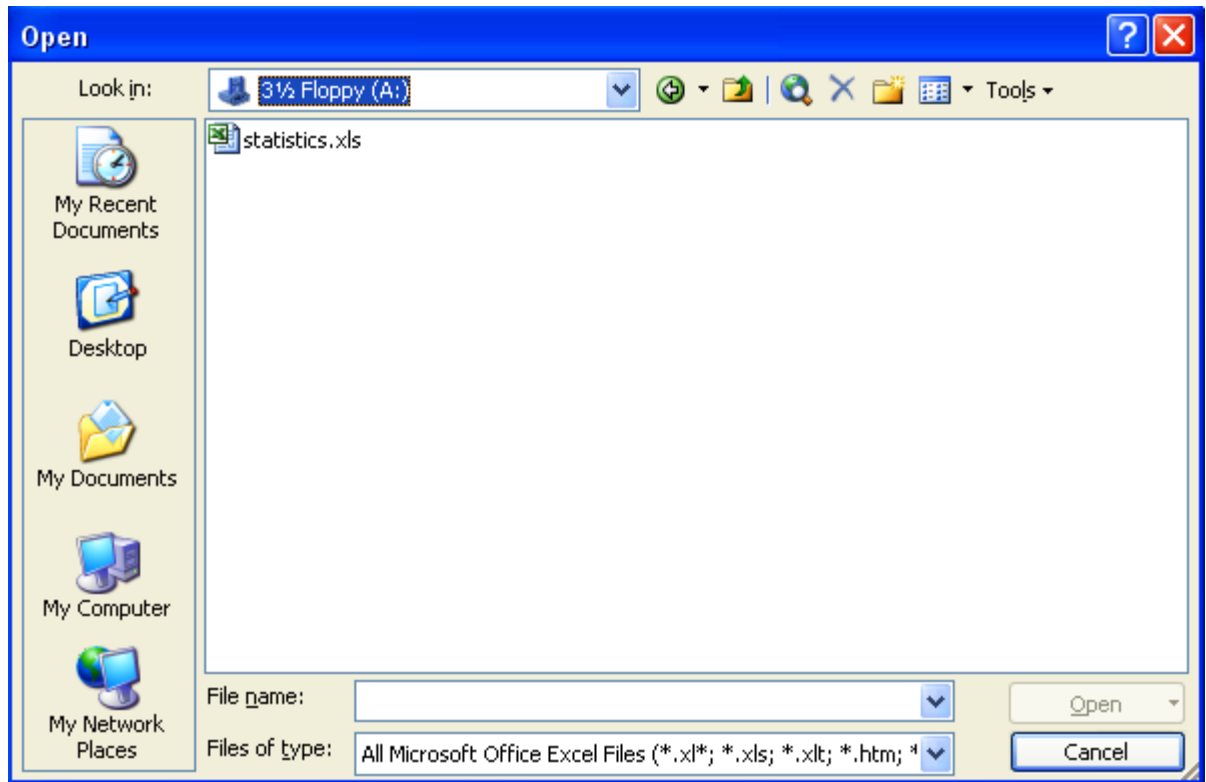
You will then be guided through the use of the Autosum function and formulas. The AutoFill feature will be explained and used. Various charts offered in Excel will be reviewed, and one or two will be used to visually illustrate statistical data.





## Open the file provided named *Statistics* as follows:

1. Click on the FILE menu to drop it down.
2. Click on the OPEN command.
3. See the OPEN dialog display.
4. In the LOOK IN box (be sure drive A is selected), see the *statistics* file.
5. Click on it to highlight it, and then click the OPEN button (or double-click the filename).



The first worksheet (Sheet 1) indicates the subject and contents of this workbook. You can use a worksheet to summarize the contents, indicate the date it was created, and specify the person or persons who created it. This is handy if your workbook contains more than several worksheets.

## Understanding cell references

### Relative Cell References

A cell reference such as A1 tells Excel which cell to use based on its location *relative* to the cell containing the formula. When you copy a formula with relative cell references to another location, the references automatically adjust. It is the same as giving a person the instructions to your home by saying “Go north two blocks, then east one block.” If the person were in another location relative to your home, such instructions would change. An absolute reference would be to give the person your address.

### Absolute Cell References

A cell reference such as \$A\$1 (the column letter and the row number each preceded with the \$ sign) tells Excel how to find a cell based on the exact location of that cell in the worksheet. You need to know when to use relative cell references, absolute cell references, or mixed cell references in a formula. We will use some simple formulas with relative cell references in this workshop.

### Mixed Cell References

A mixed reference such as A\$1 or \$A1 refers to a value in cell A1. However the reference A\$1 in a formula moved to another location on the sheet may be changed as to the column but the row would not be changed. If the reference in a formula was \$A1, and then that formula copied to another location would not change with respect to the column but may with respect to the row.

In other words, a reference to a cell in which a dollar sign is placed in front of a column does not allow that column to change when the formula is copied to another location. The same is true of a row. And, if a cell contains an absolute cell reference (such as \$A\$1), then that cell reference is not changed.

**Important:** Do not use dollar signs before numbers to indicate currency. Use number formatting instead.

# Understanding Reference Operators

## Range (colon)

The colon produces one reference to all the cells between and including the two references. For example, A1:B2 refers to the range of cells A1, A2, B1, and B2. To refer to all of column A, you would type A:A. To refer to all of row 1, you would type 1:1. To refer to all of rows 1 through 3, you would type 1:3.

## The Autosum function

You can insert a sum for a range of cells automatically by using AUTOSUM. You select the cell where you want to insert the sum and click the AUTOSUM button (depicted above) on the *Excel* standard toolbar. EXCEL suggests a formula, which you can accept by pressing the ENTER key. However, you need to first check to see whether EXCEL has made the correct choice of cell range, and if it has not, you need to change it. You can easily edit the formula in the FORMULA BAR.

### Use the Autosum function:

1. Move to SHEET 2 by clicking on the SHEET 2 tab.
2. Click on cell B50.
3. Click on AUTOSUM, the button on the *Excel* standard toolbar.
4. Note the range of cells that have been selected. Make sure the range of cells is: B8:B49. Excel has probably suggested the range B7:B49 because cell B7 contains a number and cell B6 is blank. However, the number in cell B7 is a date that should not be included in the sum. Click in the FORMULA BAR and edit the formula there so that the range is B8:B49.
5. Press the ENTER key. See the sum of the column appear in cell B50.

### Use AutoFill to place the sum formula in other contiguous cells

1. With your cursor in cell B50, click the cursor on the little dot at the lower right of the cell outline until you see a plus.
2. Drag over the cells (C50:I50) into which you want to place the formula in B50.
3. Note the formulas in each of these cells and the changes in the formulas to reflect the changed locations.

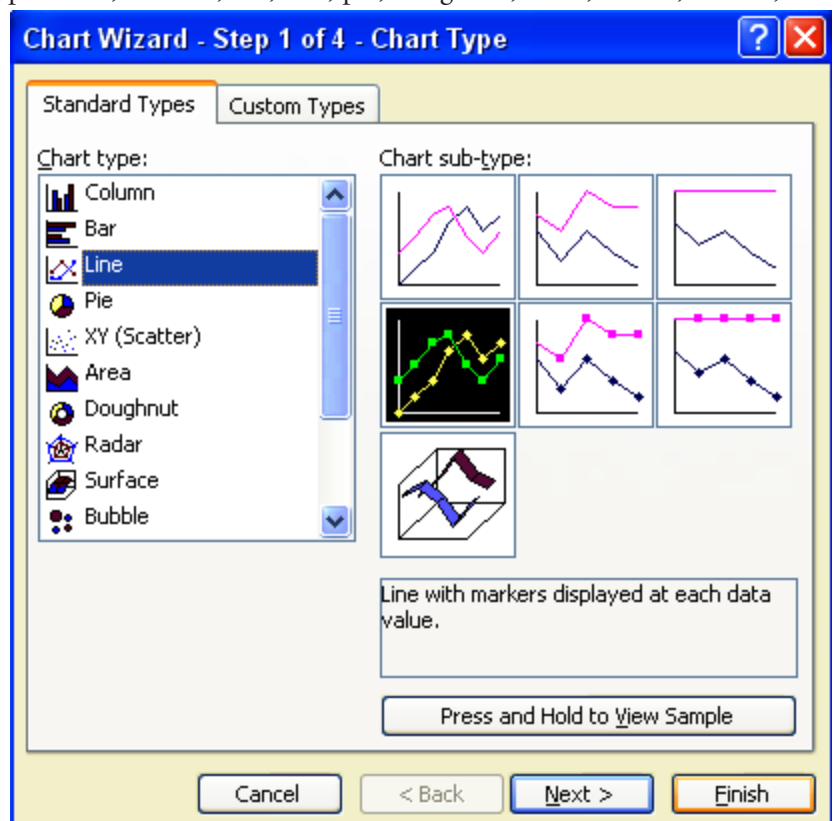
## Using charts to illustrate data visually

Charts make it easy to see comparisons, patterns, and trends in data at a glance rather than having to analyze several columns of data. Excel offers the following chart types: area, column, bar, line, pie, doughnut, stock, scatter, bubble, radar, surface, and cone. The first five (area, bar, column, line, and pie) chart types are used more than the others.

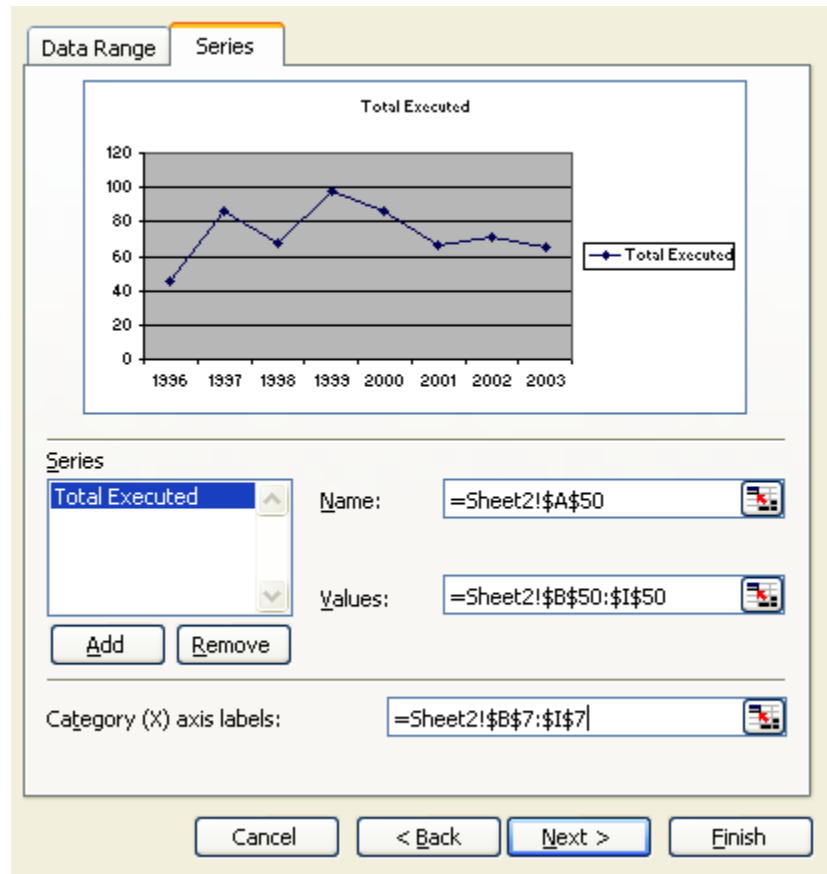
- An area chart emphasizes the magnitude of change over time.
- A bar chart illustrates comparisons among individual items.
- A column chart shows data changes over a period of time or illustrates comparisons among items.
- A line chart shows trends in data at equal intervals.
- A pie chart shows the proportional size of items that make up a data series to the sum of the items. It always shows only one data series and is used when you want to emphasize a significant element.

### Create a Line chart

1. Select the following cell range: A50:I50.
2. Click on the CHART WIZARD.
3. Under CHART TYPE, choose LINE.
4. Under CHART SUB-TYPE, choose any one you want.



5. Click on the NEXT button.
6. In the DATA RANGE panel, make sure the data range is correct and that ROW is selected.
7. Click on the SERIES TAB.
8. Click on the little red, white, and blue square at the right of the Category (X) axis label text box. This minimizes the dialog and allows you to scroll to see the data range that contains the Category (X) axis labels (dates).
9. Select the data range B7:I7 and then click on the little square at the right of the Data Range text box to maximize the dialog.
10. Note the settings in the screen picture at the right.
11. Click on the NEXT button.
12. Click on the TITLES TAB. The current chart title was picked up from the information in cell A50. You may change the chart title here. Change it to: **Total number executed in the United States.**
13. Click on the LEGEND TAB and de-select SHOW LEGEND.
14. Click NEXT.
15. You can now choose where to place the chart, either on a sheet by itself or on the current sheet.
16. Click the FINISH button.

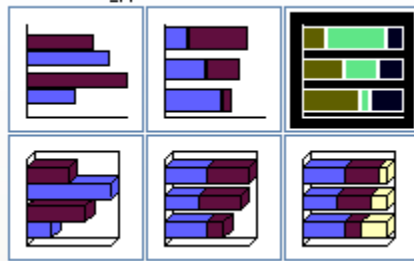


## Stacked Bar Chart

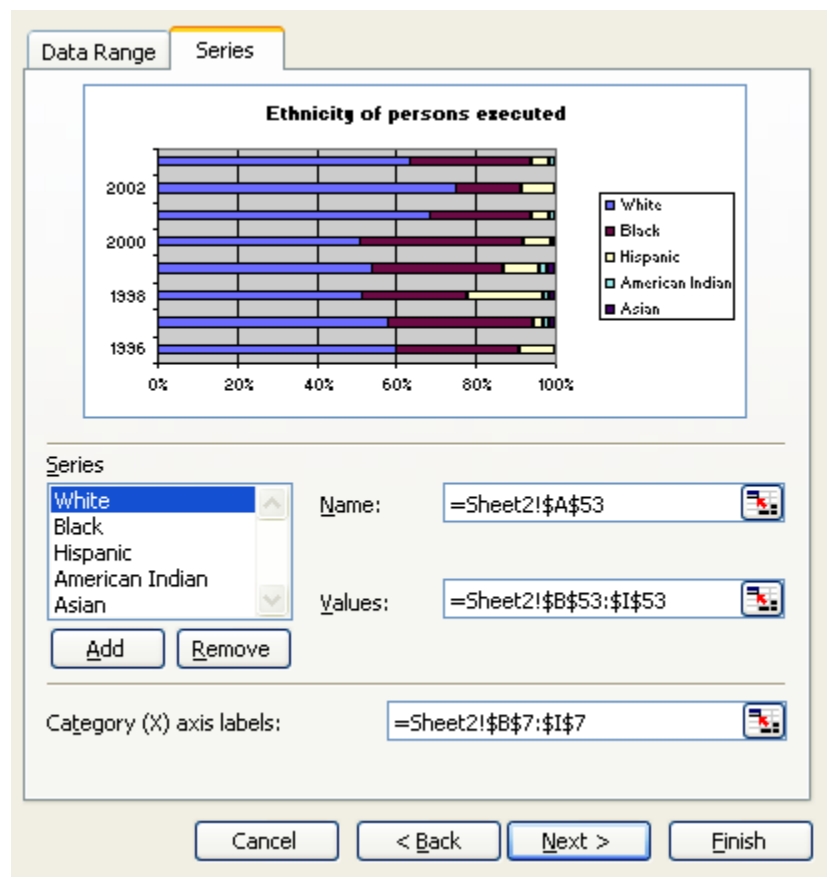
This type of chart compares the percentage each value contributes to a total across categories. It will contain the distribution by ethnicity of persons executed during the years 1996 to 2003.

1. Select the range A53:I57
2. Click on the Chart Wizard.
3. Select the Stacked Bar Chart. See screen picture of this chart type below.

Chart sub-type:

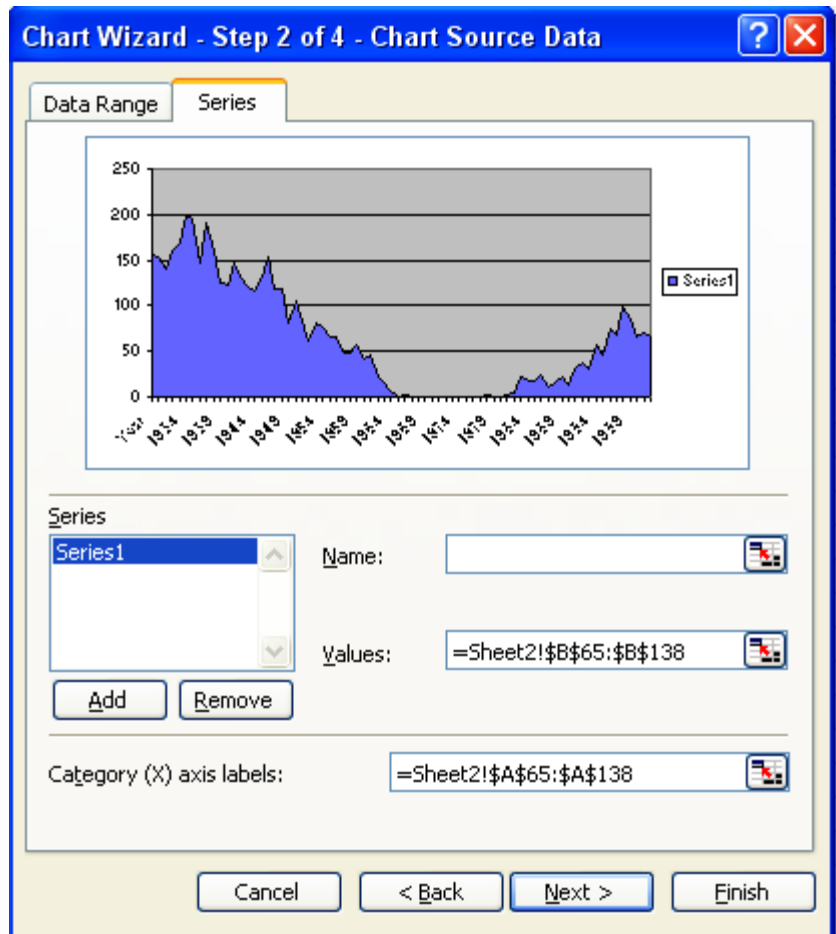


4. Click the NEXT button.
5. The SOURCE DATA chart displays. Make sure the source data is correct.
6. Click the SERIES TAB.
7. Select the Category (X) axis labels. These will be the range of years (B7:I7).
8. Click the NEXT button.
9. Fill out the Title as appropriate.
10. Position the legend as desired. In this type of chart, the legend is needed.
11. Save the chart on a sheet by itself or as an object in the current sheet.
12. Click the FINISH button.



## Create an Area chart

1. Select the cell range: B64:B138
2. Click on the CHART WIZARD.
3. Under CHART TYPE, select AREA.
4. Click NEXT.
5. Check to be sure the data range is correct and that the series is checked in columns.
6. Click the SERIES TAB.
7. For the CATEGORY (X) AXIS labels, select the cell range that contains the dates. Note: there are so many dates, the program wisely lists the dates on the chart in five-year steps. See the screen picture at right.
8. Click NEXT.
9. Click the TITLES TAB. The chart title will be: **Executions in the U. S. for Years 1930 through 2003**
10. Click the LEGEND TAB and uncheck SHOW LEGEND. (There is only one set of values displayed, and a legend is not necessary).
11. Click NEXT.
12. You can choose to place the chart as a new sheet or as an object in Sheet 2.
14. Click FINISH.



## Using Fills and Formulas

### Fill in the Dates

1. On Sheet 3, select these two cells: A6 and A7. They contain the years 1985 and 1986. The program can tell the difference between the two years, which is one.
2. Click the cursor over the small black square at the lower right of the border of these two cells to use the AUTOFILL feature to fill in the rest of the dates automatically.
3. With the small cross cursor, drag to cell A22. The dates will be filled in with the difference in the years as indicated by the first two cells.



### Use the Autosum function and the AutoFill feature to fill in the Total column



1. Click in Cell F6.
2. Click the AUTOSUM button. See it highlighted in the screen picture of the STANDARD toolbar above.
3. Correct the range. The range you want to sum should be B6:E6 (do not include the date cell).
4. With F6 the current cell, click on the small dot at the lower right of the cell border until you see a cross.
5. Using the AUTOFILL feature, drag the cursor over cells F7:F22 to place the SUM formula into these cells.

### Calculate the Percentage of Change

First you will calculate the percentage of change from 2000 to 2001. To do so, you will need to subtract the 2000 figure from the 2001 figure, then you will divide this by the 2000 figure. You will need to enter the formula as follows:

1. Click on cell B25, and type an equal sign = (In Excel this indicates that what follows is a formula.)
2. Type a beginning parenthesis (
3. Type the cell address of the 2001 probation figure, or click on the cell.
4. Type a minus sign - (indicating subtraction)
5. Type the cell address of the 2000 probation figure, or click on the cell.
6. Type an ending parenthesis )
7. Type a slash / (indicating division)
8. Type the cell address of the 2000 probation figure, or click on the cell.
9. Press the ENTER key.
10. Now click on the Percentage button on the Formatting toolbar. 
11. Click on the Increase Decimal button on the Formatting toolbar until you have two decimal places. 

Calculate the percentage of change for the probation column between the years 1985 to 2001. Click on cell B26 and enter the formula, following the above procedure, and format the percentage of change as above.

### **Use AutoFill to copy the formulas to the Jail, Prison, Parole, and Total columns.**

1. Select the cells B25 and B26 and note the small dot at the bottom right of the border around the two cells.
2. Click on the small dot until it becomes a cross then drag the cursor over cells F25:F26.
3. Click on each of the cells in the F25:F26 range, and notice how *Excel* has changed the cell references automatically so that you don't have to enter all these formulas manually. Notice also, that *Excel* has also copied the format of the cells.

**Note:** It would be impossible to copy formulas and have the spreadsheet program automatically adjust the cell references if you had entered absolute cell references. If you have a formula in which one or more cells **must not be adjusted** when copying formulas, then use absolute or mixed cell addresses.

### **Print one of the sheets**

1. Make sure your printer is turned on and contains paper.
2. Select the sheet you want to print.
3. Click FILE then click PRINT to display the PRINT dialog.
4. Note the settings under PRINT RANGE: ALL or PAGE(S). If you select PAGE(S), then you need to enter the starting and ending page.
5. See the selections under PRINT WHAT: SELECTION, ENTIRE WORKBOOK, or ACTIVE SHEET(S).
6. Print the ACTIVE sheet. Don't print out the entire workbook.
7. When you are satisfied with your selection, click the OK button.

### **Close Excel**

1. Pull down the FILE menu.
2. Select EXIT.
3. Do not save the file.