**2. Auditing Worksheets**

**In this lesson, you will learn...**

1. To audit formulas.

2. To trace precedents to determine which cells impact a specific cell.

3. To trace dependents to determine which cells are impacted by a specific cell.

4. To remove precedent and dependent arrows.

5. To show formulas.

6. To check for errors frequently found in formulas.

Large spreadsheets are often very complicated with formulas referring to many cells each of which contain their own formulas referring to other cells that might be contained in other worksheets or even other workbooks. Excel's Formula Auditing commands are very helpful when working in large worksheets.

The two most common uses of the Formula Auditing commands are:

1. To locate the cause of errors. Often an error appearing in one cell is causedby an error in another cell. The Formula Auditing commands can help youfind the cell causing the error.

2. To better understand worksheets and information in specific cells. In acomplex worksheet, it can be difficult to ascertain where results come from. TheFormula Auditing commands can help you understand how different cells inthe worksheet relate to each other.

Detailed instructions for using the most commonly used **Formula Auditing**commands follow.

**Tracing Precedents**

Tracing precedents in Microsoft Excel allows you to visually see which cells impactagiven cell. To trace precedents:

|  |  |
| --- | --- |
| 1. | Select the cell to trace precedents for. |
| 2. | On the **Formulas**tab, in the **Formula Auditing**group, click the **TracePrecedents**command:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0001_03200.lowres.png?imageVersion=1 |
| 3. | The following screen shot shows the precedents for cell **B11**:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0001_04200.lowres.png?imageVersion=1 |
| 4. | By clicking **Trace Precedents**a second time, we see another level ofprecedents(the precedents for the cells directly preceding the first cell):  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0001_05200.lowres.png?imageVersion=1 |
| 5. | Clicking **Trace Precedents**subsequent times shows additional levels ofprecedents. If one of the preceding cells is on another sheet, Excel will add anarrow pointing to an image of another sheet:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0002_03200.lowres.png?imageVersion=1 |
| 6. | By double-clicking the small circle next to the image of the sheet, you can openthe **Go To**dialog box to see which sheet the cell refers to:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0002_04200.lowres.png?imageVersion=1 |
| 7. | Select the sheet and click **OK**to go to the specific cell in the other sheet:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0002_05200.lowres.png?imageVersion=1 |
| 8. | To remove the arrows showing precedents, click **Remove Arrows**:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0003_03200.lowres.png?imageVersion=1 |

**Exercise 2 Tracing Precedents**

***5 to 15 minutes***

In this exercise, you will practice tracing precedents.

|  |  |
| --- | --- |
| 1. | Open Auditing Formulas.xlsx from your Excel2016.3/Exercises folder. |
| 2. | What are the first-level precedents for cell **B5**? |
| 3. | What are the second-level precedents for cell **B5**? |
| 4. | What are the first-level precedents for cell **B11**? |
| 5. | What are the second-level precedents for cell **B11**? |

**Exercise Solution**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | The first-level precedents for cell **B5** are cells **B3** and **B4**. To figure this out:   |  |  | | --- | --- | | A. | Select cell **B5**. | | B. | On the **FORMULAS**tab, in the **Formula Auditing**group, click the **TracePrecedents**command:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0005_04200.lowres.png?imageVersion=1 | | C. | The preceding cells are indicated by the arrow:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0005_05200.lowres.png?imageVersion=1 | |
| 2. | The second-level precedents for cell **B5** are cells **B12** and **B13** in the sheetnamed "Revenue".To figure this out:   |  |  | | --- | --- | | A. | Click **Trace Precedents**again. | | B. | Double-click the small circles next to the images of the sheets in order toopen the **Go To**dialog box showing the sheets and cells:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0005_06200.lowres.png?imageVersion=1 | |
| 3. | Remove the arrows showing the precedents for cell **B5** by clicking **RemoveArrows**:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0005_07200.lowres.png?imageVersion=1 |
| 4. | The first-level precedents for cell **B11** are cells **B5** and **B10**. To figure this out:   |  |  | | --- | --- | | A. | Select cell **B11**. | | B. | On the **FORMULAS**tab, in the **Formula Auditing**group, click the **TracePrecedents**command:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0006_03200.lowres.png?imageVersion=1 | | C. | The preceding cells are indicated by the arrow:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0006_04200.lowres.png?imageVersion=1 | |
| 5. | The second-level precedents for cell **B11** are cells **B3:B4** and cells **B7:B9**. Tofigure this out:   |  |  | | --- | --- | | A. | Click **Trace Precedents**again. | | B. | The preceding cells are indicated by the arrows pointing to **B5** and **B10**:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0006_05200.lowres.png?imageVersion=1 | |

**Tracing Dependents**

Tracing dependents in Microsoft Excel allows you to visually see which cells areimpacted by a given cell. To trace dependents:

|  |  |
| --- | --- |
| 1. | Select the cell to trace dependents for. |
| 2. | On the **Formulas**tab, in the **Formula Auditing**group, click the **TraceDependents**command:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0008_03200.lowres.png?imageVersion=1 |
| 3. | The following screen shot shows the dependents for cell **C3**:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0008_04200.lowres.png?imageVersion=1 |
| 4. | By clicking **Trace Dependents**a second time, we see another level ofdependents (the dependents for the cells directly dependent upon the first cell):  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0008_05200.lowres.png?imageVersion=1 |
| 5. | As with precedents, clicking **Trace Dependents**subsequent times showsadditional levels of dependents. If one of the dependent cells is on anothersheet, Excel will add an arrow pointing to an image of another sheet. |
| 6. | To remove the arrows showing dependents, click **Remove Arrows**:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0008_06200.lowres.png?imageVersion=1 |

**Exercise 3 Tracing Dependents**

***5 to 10 minutes***

In this exercise, you will practice tracing dependents.

|  |  |
| --- | --- |
| 1. | Open Auditing Formulas.xlsx from your Excel2016.3/Exercises folder. |
| 2. | What are the first-level dependents for cell **B4**? |
| 3. | What are the second-level dependents for cell **B4**? |

**Exercise Solution**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | The first-level dependent for cell **B4** is cell **B5**. To figure this out:   |  |  | | --- | --- | | A. | Select cell **B4**. | | B. | On the **Formulas**tab, in the **Formula Auditing**group, click the **TraceDependents**command:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0011_04200.lowres.png?imageVersion=1 | | C. | The dependent cells are indicated by the arrow:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0011_05200.lowres.png?imageVersion=1 | |
| 2. | The second-level dependents for cell **B4** are cells **B8:E8** and cells **B9** and **B11**.To figure thisout:   |  |  | | --- | --- | | A. | Click **Trace Dependents**again. | | B. | The dependent cells are indicated by the arrows:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0011_06200.lowres.png?imageVersion=1 | |
| 3. | Remove the arrows by clicking **Remove Arrows**:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0011_07200.lowres.png?imageVersion=1 |

**Showing Formulas**

Sometimes it is useful to see the formulas in all the cells in a worksheet rather thanthe values. To show formulas:

|  |  |
| --- | --- |
| 1. | Select any cell in the worksheet in which you want to show the formulas. |
| 2. | On the **Formulas**tab, in the **Formula Auditing**group, click the **ShowFormulas**command:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0012_03200.lowres.png?imageVersion=1 |
| 3. | Instead of values, you can now see the formulas in each cell:  https://az756479.vo.msecnd.net/assets/Additions/44f2d427-bf87-4131-81b8-c343dc8a6e78/images/55167a02-image_0012_04200.lowres.png?imageVersion=1 |
| 4. | To go back to showing values, simply click the **Show Formulas**commandagain. |

**Conclusion**

In this lesson, you learned to audit formulas, to trace precedents and dependents todetermine how cells are impacted by other cells, to remove precedent and dependentarrows, and to show formulas.