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Nine Types of References in Excel:

- 1) Relative Cell Reference
- 2) Absolute Cell Reference (Locked)
- 3) Mixed Cell Reference with row locked cell reference (also known as row absolute, column relative)
- 4) Mixed Cell Reference with column locked cell reference (also known as column absolute, row relative)
- 5) Worksheet Cell Reference
- 6) Workbook Cell Reference
- 7) 3D cell reference
- 8) Defined Name
- 9) Table Formula Nomenclature (Structured References)

Copying formulas with Cell References:

- 1) When we copy a formula that contains cell references, we need to consider whether we need: Relative, Absolute, Mixed with the Column Locked or Mixed with the Row Locked.
- 2) If you will not copy the formula, there is no need to consider what type of cell reference it will be.

Four Basic Types of Cell References (Relative, Absolute, Mixed Column Locked, Mixed Row Locked):

- 1) Relative Cell References – Example: A1
 - No dollar signs
 - Moves relatively throughout the copy action.
 - Relatively means that if the formula is looking at a cell reference that is three cells to the left, when you copy the formula to any other cell, the cell reference will still be looking three cells to the left.
- 2) Absolute Cell References – Example: \$A\$1
 - Dollar signs before both:
 - i. Column reference = A
 - ii. Row reference = 1
 - Absolute means that if the formula is looking at a particular cell reference, when you copy the formula to any other cell, the cell reference will still be looking at that particular cell reference. If the absolute cell reference is \$A\$1, the formula will always look at cell A1. It is as if the formula is locked on the cell A1 throughout copy action.
- 3) Mixed Cell References with Row Locked – Example: A\$1
 - Dollar sign before row reference only.
 - Remains absolute or locked when copying vertically (up and down) across the rows.
 - Moves relatively when copying horizontally (side to side) across the columns.
- 4) Mixed Cell References with Column Locked – Example: \$A1
 - Dollar sign before column reference only.
 - Remains absolute or locked when copying horizontally (side to side) across the columns.
 - Moves relatively when copying vertically (up and down) across the rows.

Keyboard to Toggle Cell References = F4 Key.

- 1) F4 key = If cursor is touching a cell reference in a formula while in edit mode, F4 toggles between the four basic types of cell references.

Assumption Tables (Formula Inputs) & Mixed Cell Reference Notes

- 1) When you are copying a formula through rectangular range (like with an expenses formula that has expenses as a percentage of revenue as row headers and revenue as column headers, in order to use Mixed Cell References, the Assumption table has to be orientated in the same way as the table with formulas.
- 2) Example:

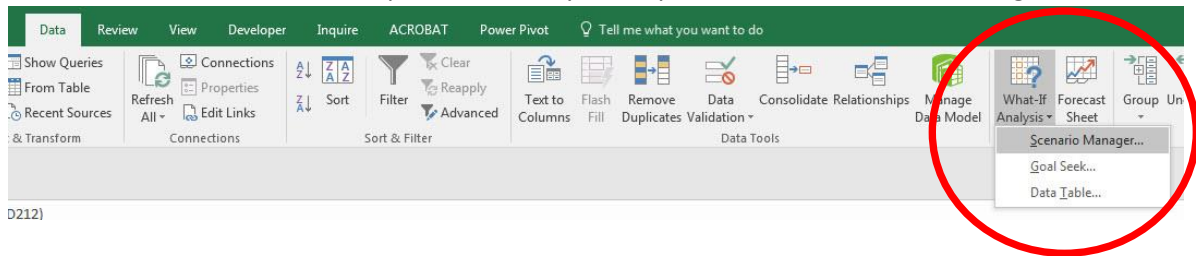
Example 6: Mixed Cell References & Assumption Tables.								
Goal: Calculate Expenses for Budgeting Process.								
Month	Jan	Feb	Mar	Apr	May			
Revenue	\$65,487	\$75,894	\$65,007	\$95,449	\$99,220			
COGS	\$30,422.63	\$35,257.30	\$30,199.64	\$44,341.77	\$46,093.63			
Operating	\$12,756.17	\$14,783.34	\$12,662.67	\$18,592.44	\$19,326.99			
Administrative	\$10,110.37	\$11,717.08	\$10,036.27	\$14,736.13	\$15,318.33			
Other	\$2,643.80	\$3,063.95	\$2,624.42	\$3,853.41	\$4,005.65			
Total Expenses	\$55,933	\$64,822	\$55,523	\$81,524	\$84,745			
Net Income	\$9,554	\$11,072	\$9,484	\$13,925	\$14,475			
This Assumption Table can be used with Mixed Cell References because expenses in Assumption Table are oriented in the same direction as the formula table.								
Assumption Table (Formula Inputs):								
COGS	46.46%		<=> Expenses are Vertical in Assumption Table & Vertical in Formula Table					
Operating	19.48%		Horizontal / Horizontal works.					
Administrative	15.44%		Vertical / Vertical works.					
Other	4.04%		Horizontal / Vertical will NOT work.					
This Assumption Table can NOT be used with Mixed Cell References because expenses in Assumption Table are NOT oriented in the same direction as the formula table.								
Assumption Table (Formula Inputs):								
COGS	Operating	Administrative	Other					
46.46%	19.48%	15.44%	4.04%					

- 3) For Mixed Cell References and Assumption Tables:
 - Horizontal / Horizontal works.
 - Vertical / Vertical works.
 - Horizontal / Vertical will NOT work.

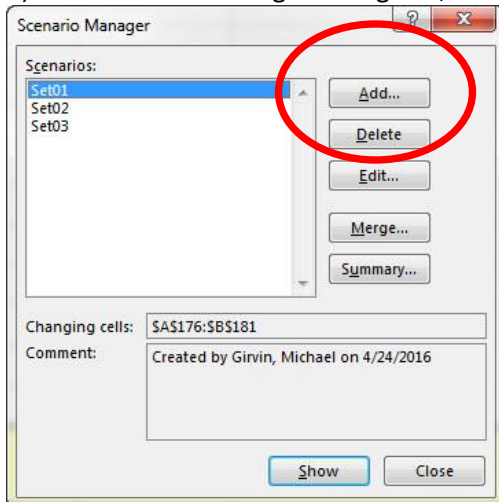
Saving Sets of Formula Inputs with Scenario Manager

Steps to save Formula Inputs:

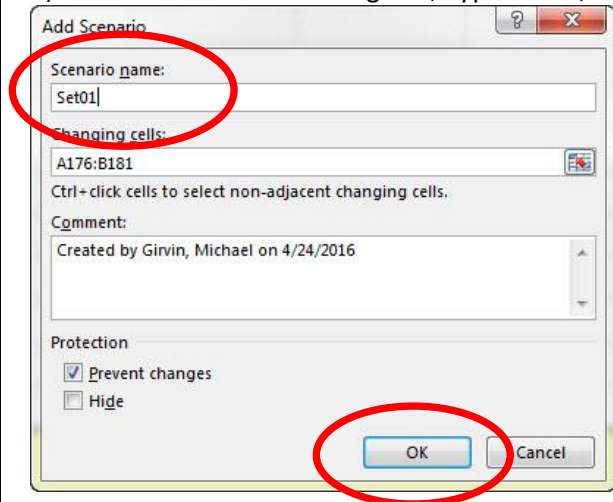
- 1) Highlight cells with formula inputs.
- 2) Data Ribbon Tab, Forecast Group, What If Analysis Dropdown Arrow, Scenario Manager.



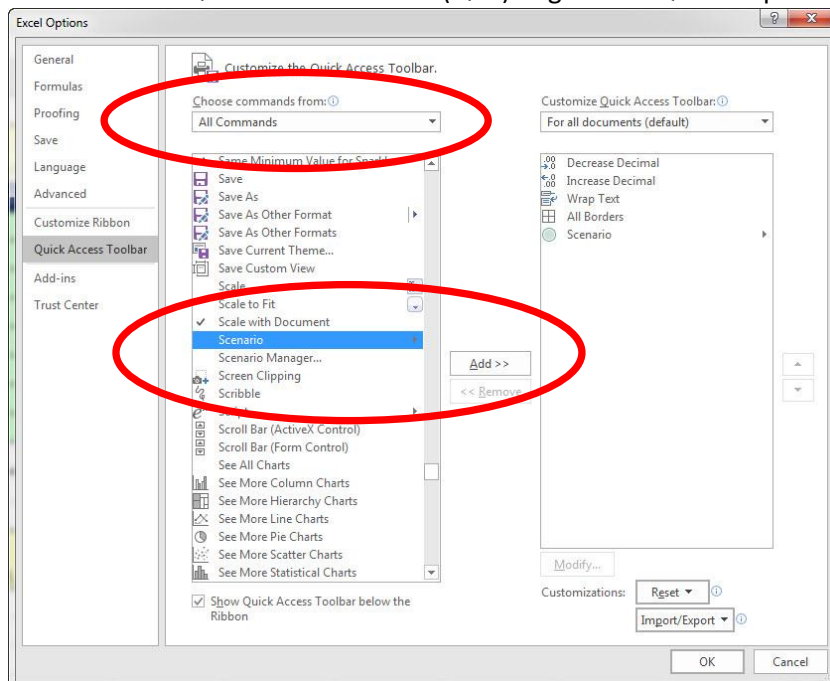
3) Scenario Manager dialog box, Click Add:



4) Scenario Values Dialog Box, Type Name, Click OK:



5) Add Button to Quick Access Toolbar (QAT): Right-click QAT and point to "Customize..."



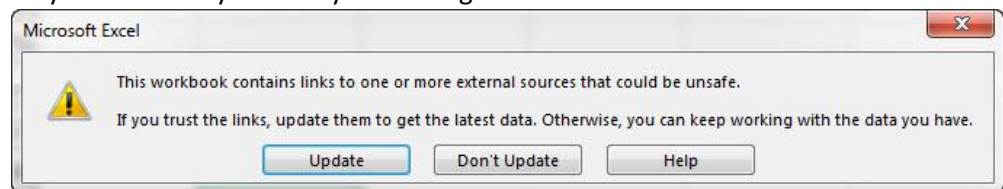
6) Keyboard to open Scenario Manager = Alt, T, E

Sheet References

- 1) Sheet Reference = Cell Reference from a different Sheet in the same Workbook File.
- 2) A Sheet Reference can be Relative, Absolute or Mixed.
- 3) The syntax for a Sheet Reference is:
 - Sheet Name (that has no spaces) followed by an Exclamation Point, like: =CAR!B2
 1. CAR is sheet name.
 2. Exclamation Point is the syntax that tells the formula that the word CAR is not a function name or text, but rather it is a Sheet Name.
 - If Sheet Name has spaces, you must have sheet name in single quotes, like: 'Control AR'!B2.
- 4) Methods for entering a Sheet Reference:
 - If you are entering a single cell from a different sheet:
 1. Type equal sign
 2. Click on sheet
 3. click on cell on "clicked on sheet"
 - i. Don't click back on sheet with formula!!!
 4. Hit Enter!!
 - You can type the entire Sheet Reference.
 - Open New Window so that it is easy to click back and forth between different Sheets:
 1. View Ribbon Tab, Window group, New Window.
 - i. This opens same sheet as a duplicate in a new window.
 - ii. Notice that in the title bar you can see a "1" and a "2" on the two different windows.
 2. To see sheets side by side:
 - i. View Ribbon Tab, Window group, Arrange All, click dialog button for Vertical.
 3. With both Windows open, you can expose different sheets in each window so that we can easily work back and forth between the Sheet Tabs.
 4. When we open a New Window, we are opening a duplicate of the Excel Workbook File. This means we see two versions of the same file, even though there is only one actual file. If we enter new data, create formulas or make changes, the changes are added to the single file.

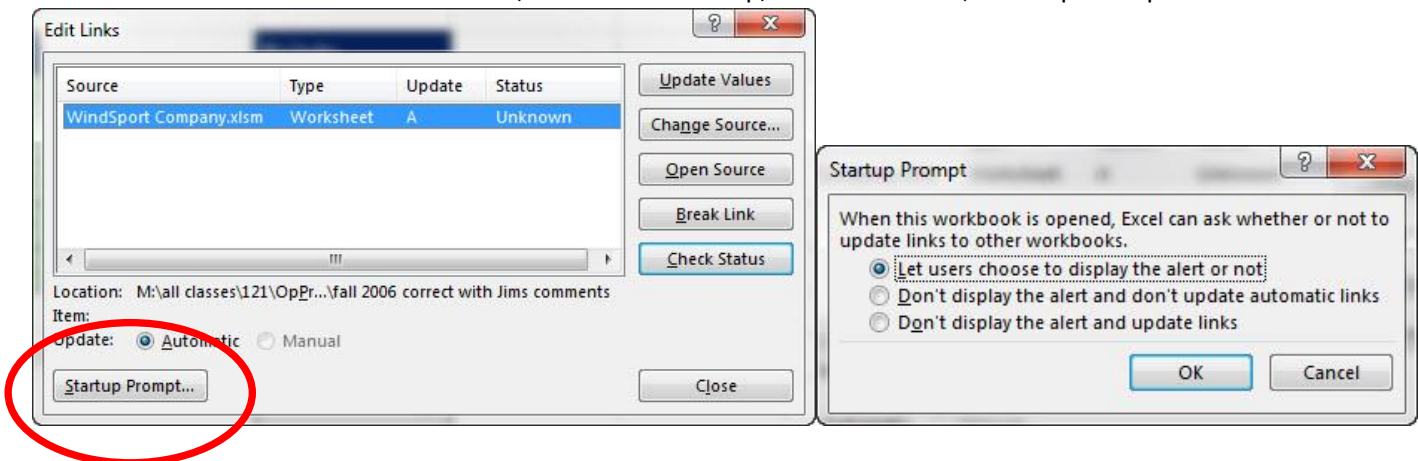
Workbook References

- 1) Workbook Reference = Cell Reference from a different Workbook.
 - Destination Excel Workbook File = File that contains the Workbook Reference.
 - Source Excel Workbook File = File that contains the source data or reference.
- 2) Absolute Cell References are default, but you can change them with F4 key.
 - A Workbook Reference can be Relative, Absolute or Mixed.
- 3) The syntax for a Workbook Reference when you first create it is:
 - =Example:
'[May Net Income.xlsx]May NI'!\$B\$10
 - Square Brackets surround Workbook File Name for the Source File.
 - Single quotes surround File and Sheet Name.
- 4) The syntax for a Workbook Reference after you close the Source File:
 - Shows the entire file path name.
 - The full file path name is necessary so that the files can communicate with each other.
- 5) In order for the Destination Excel Workbook File to update, you must click the "Update" button when you open the file.
 - Dialog Box you will see if you have your settings set to :



- 6) You can update, change, open source, break links or set the sort of Start Up Message you would like to see:

- Data Ribbon Tab, Connections Group, Edit Link button, Start Up Prompt button:



- 7) Method for creating a Workbook Reference:

- Type equal sign
- Click on Workbook
- Click on sheet
- click on cell on "clicked on sheet"
- Hit Enter!!

3-D References

- 1) 3-D References are used when you:
 - Have same layout or arrangement of a template on each Sheet Tab
AND
 - You want to reference the same cell from across Sheet Tabs.
- 2) Create 3-D Reference:
 - Click on first Sheet Tab
 - Click on cell or range
 - HOLD SHIFT
 - Click on last Sheet Tab
 - Hit Enter
- 3) Syntax for 3-D Cell References:
 - Example:
=SUM(Oak:Tac!B3)
 - Colon between Sheet Names means if you were to insert a sheet between the first and last sheet, the formula would update.
 - Exclamation Point is the syntax that tells the formula that the words Oak and Tac are not function names or text, but rather they are Sheet Names.
- 4) A Sheet Reference can be Relative, Absolute or Mixed.

Defined Names

- 1) Defined Names are names given to a cell or range of cells that can then be used as references in formulas, PivotTables and other places that references are needed.
 - Example:
 1. Rather than using formula =SUM(A2:A10), we can name the range A2:A10 “JanSales” and then use the formula =SUM(JanSales)
 - Full list of what a Defined Names can represents: cell, range of cells, *formula*, or *constant value*.
- 2) Create a Defined Name:
 - Using Name Box:
 1. Select the cell, range of cells, or nonadjacent selections that you want to name.
 2. Click the Name box at the left end of the formula bar. Name box.
 3. Type the name that you want to use to refer to your selection.
 - i. The first character of a name must be letter, underscore (_), or backslash (\). Remaining characters can be: letters, numbers, periods, and underscores.
 - ii. Names can be up to 255 characters in length.
 - iii. No Spaces.
 - iv. Names cannot be the same as a cell reference, such as Z\$100, R1C1 or ROI2016.
 - v. Excel does not distinguish between uppercase and lowercase.
 4. Press ENTER.
- 3) Defined Names are by default Absolute Cell References. You can edit this default in the Name Manager.
- 4) Defined Names are available anywhere in the Excel Workbook File.
- 5) If you type a duplicate name, the scope will be for just that worksheet.
- 6) Name Manager
 - You can edit or delete Defined Names or Excel Table Names in Name Manager
 - Ctrl + F3 = Keyboard to open Name Manager.
- 7) Create Names From Selection
 - If you have Column Headers (Field Names) at the top of a column or if you have Row Headers on the left of a row, you can highlight the range and created a Defined Name two ways:
 1. Formulas Ribbon Tab, Defined Name group, Create From Selection button.
 2. **Ctrl + Shift + Enter** = keyboard to Create Names From Selection.
- 8) Apply Defined Names in Formulas:
 - If you have already created formulas, and then AFTER you create a Defined Name, you can apply the names to the already created formula:
 1. Formulas Ribbon Tab, Defined Name group, Defined Names drop-down, Apply Names
- 9) Really Good Link for full details about Defined Names:
https://support.office.com/en-us/article/Define-and-use-names-in-formulas-4d0f13ac-53b7-422e-afd2-abd7ff379c64#bmlearn_more_about_using_names
- 10) Defined Names appear as Gold Dog Tags in the “Formula’s Function Defined Name Dropdown”:



- Defined Names = Gold Dog Tag
 - Excel Table Name = Icon for a Proper Data Set
 - Built-in Function = F of X Icon
- 11) **Ctrl + F3** = Paste Defined Name Keyboard
 - 12) You can select Defined Names from the Name Box (left side of formula bar) to jump to the location of the Defined Name.

Excel Table feature and Table Formula Nomenclature (Structured References)

1) Advantage of converting Data Set to Excel Table and using Table Formula Nomenclature:

- By converting a data set to an Excel Table, the Excel Table becomes dynamic and anything that points to the Excel Table will update when the data or structure of the Excel Table changes. This is how Tables work in Database programs.

- We can use Table Formula Nomenclature (Structured References) to create dynamic ranges.

2) Table Formula Nomenclature ranges are **dynamic**

- "**Dynamic**" means: When you "**change the data or structure in an Excel Table**", "**anything that is pointing to the table**" will update.
- "**change the data or structure in an Excel Table**" can mean:
 1. Adding new records
 2. Deleting records
 3. adding new columns
 4. Changing source data
- "**Anything that is pointing to the table**" includes Excel elements and features such as:
 1. Formulas
 2. Charts
 3. PivotTables
 4. Power Queries
 5. Power Pivot Data Model
 6. Data Validation Lists

3) Convert Data Set to an Excel Table:







- Insert Ribbon Tab, Table group, Table.
- Ctrl + T = keyboard.

4) Name Excel Table:

- Table Tools Design Ribbon Tab, Properties group, Table Name textbox.
- Alt, J, T, A = keyboard.

5) When you create an Excel Table, formatting is added to the table and drop-down arrows are added to the top of each column for sorting and filtering.

6) When you create an Excel Table, columns and other table elements have names:

Example of Table:	Example of Excel Table elements:																											
<table><tr><th>Sales</th><th>Product</th></tr><tr><td>\$1,140</td><td>Quad</td></tr><tr><td>\$2,501</td><td>Sunset</td></tr><tr><td>\$1,412</td><td>Yanaki</td></tr><tr><td>\$1,168</td><td>Quad</td></tr><tr><td>\$1,329</td><td>Quad</td></tr><tr><td>\$1,298</td><td>Yanaki</td></tr><tr><td>\$2,394</td><td>Sunset</td></tr><tr><td>\$1,291</td><td>Sunset</td></tr><tr><td>\$2,037</td><td>Yanaki</td></tr></table>	Sales	Product	\$1,140	Quad	\$2,501	Sunset	\$1,412	Yanaki	\$1,168	Quad	\$1,329	Quad	\$1,298	Yanaki	\$2,394	Sunset	\$1,291	Sunset	\$2,037	Yanaki	<table><tr><td> Sales</td></tr><tr><td> Product</td></tr><tr><td>#All</td></tr><tr><td>#Data</td></tr><tr><td>#Headers</td></tr><tr><td>#Totals</td></tr><tr><td>@ - This Row</td></tr></table>	 Sales	 Product	#All	#Data	#Headers	#Totals	@ - This Row
Sales	Product																											
\$1,140	Quad																											
\$2,501	Sunset																											
\$1,412	Yanaki																											
\$1,168	Quad																											
\$1,329	Quad																											
\$1,298	Yanaki																											
\$2,394	Sunset																											
\$1,291	Sunset																											
\$2,037	Yanaki																											
 Sales																												
 Product																												
#All																												
#Data																												
#Headers																												
#Totals																												
@ - This Row																												

7) Syntax for Table Formula Nomenclature:

- Table Name and then Field Name or other table element in Square Brackets.

1. Example:

Sales	
=SUM(SalesTable[Sales])	
SUM(number1, [number2], ...)	

2. Relative Reference in Table Formula Nomenclature:

- When making a formula in a Table column and you want a Relative Reference that points to another column you must use the @ symbol and field name in square brackets, like:

Sales	Product	Commission (\$)
\$1,140	Quad	=[@Sales]*\$E\$260
\$2,501	Sunset	\$68.78

3. Mixed Reference in Table Formula Nomenclature:

- When you refer to a column in an Excel Table with Table Formula Nomenclature and you copy it, the column will:
 - Move Relatively when you copy it to the side (across the columns).
 - Will cycle back to the first column if you copy it past the last column in the Excel Table.
 - Remain Locked (Absolute) when you copy it down or up (across the rows).

ii. Example:

Number Defects for Each Product:				Total Defects:			
Product	Jan	Feb	Mar	Jan	Feb	Mar	Apr
Quad	11	1	6	=SUM(DefectsTable[Jan])			
Carlota	28	5	9				
Sunshine	9	0	1				
Sunset	17	11	23				
Majestic Beaut	5	13	0				

Number Defects for Each Product:				Total Defects:			
Product	Jan	Feb	Mar	Jan	Feb	Mar	Apr
Quad	11	1	6	70	=SUM(DefectsTable[Feb])		
Carlota	28	5	9				
Sunshine	9	0	1				
Sunset	17	11	23				
Majestic Beaut	5	13	0				

Number Defects for Each Product:				Total Defects:			
				Jan	Feb	Mar	Apr
Product	Jan	Feb	Mar				
Quad	11	1	6	70	30	39	=SUM(DefectsTable[Product])
Carlota	28	5	9				
Sunshine	9	0	1				
Sunset	17	11	23				
Majestic Beaut	5	13	0				

4. Absolute Reference in Table Formula Nomenclature:

- i. To lock a field you can use the syntax: [[Field]:[Field]]

To lock a field you can use the syntax: [[Field]:[Field]]

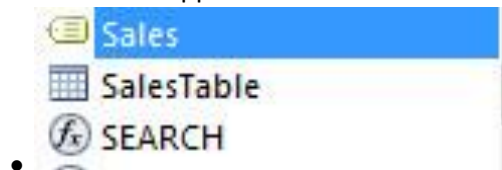
Dog	Date	Invoice Num	Category	Amount
Mandy	7/23/2013	10590	Food	\$36.80
Mandy	7/23/2013	10590	Accessories	\$22.00
Mandy	7/23/2013	10590	Accessories	\$150.00
Mandy	7/23/2013	10590	Boarding	\$320.00
Mandy	7/23/2013	10590	Food	\$6.30
Fido	7/23/2013	10591	Food	\$17.80
Fido	7/23/2013	10591	Accessories	\$25.00
Fido	7/23/2013	10591	Accessories	\$32.50
Fido	7/23/2013	10591	Boarding	\$96.00

Dogs	Food	Accessories	Boarding
Fido	=SUMIFS(DogStoreTable[[Amount]:[Amount]],DogStoreTable[[Dog]:[Dog]],\$G298,		
Fluffy	DogStoreTable[[Category]:[Category]],H\$297)		
Gigi	SUMIFS(sum_range, criteria_range1, criteria1, [criteria_range2, criteria2], [criteria_range3, criteria3], ...)		
Thomas	0	0	0
Wawa	0	0	0
Mandy	43.1	172	320
May Won	0	0	0

8) Table Formula Nomenclature is available anywhere in the Excel Workbook File.

- On any sheet in the Excel Workbook, you can type the table formula nomenclature.

9) Excel Table Names appear as Table Icons in the "Formula's Function Defined Name Dropdown":



Notes on Finance & Cash Flow:

1) In Finance, Cash Flow is always the direction of the cash: In or Out of your wallet or purse:

- Cash Flow Negative = Cash **OUT** of your wallet or purse.

1. Examples:

- i. When you put money into a bank or an investment.
- ii. When you pay your mortgage.
- iii. When you pay your rent.

- Cash Flow Positive = Cash **IN** to your wallet or purse.

1. Examples:

- i. When the bank receives cash.
- ii. When you receive a paycheck.
- iii. When you receive a retirement payment.

2) FV Function in Excel:

- Calculates the future value of an investment given a constant interest rate and equal payments paid at equal time intervals.
- If the investment is based on a contractual rate (like bank CD), FV will give actual future value; if investment is based on an estimated rate (like stock market), FV will give estimated future value.
- FV arguments:
 1. **rate** = Period Rate (Year, Month, Day...). Same rate each period. If Rate is annual and you need monthly use **Annual/12**
 2. **nper** = Total Number of Periods (Year, Month, Day...). Each period is exactly the same (equal time intervals). If time is given in years and you are making deposits monthly use **Annual*12**
 3. **pmt** = Equal payments each period. Amounts cannot change.
 4. **[pv]** Present value (amount you have in bank/investment at time zero)
 5. **[type]** whether or not you make payment at beginning or end:
 - i. End = omitted or 0
 - ii. Begin = 1
 6. Note: rate, nper and pmt must all use same time period.
 7. Examples:
 - i. If payment is annual, then rate must be annual rate and nper must be total number of years.
 - ii. If payment is monthly, then rate must be monthly rate and nper must be total number of months.

Notes about Expense Ratios for budgeting (and Ratios in general):

- 1) What is a Ratio?
 - When you perform division and you keep the units in the numerator and denominator
 - Example: $\$45,879 \text{ COGS} / \$98,758 \text{ Revenue} = \$0.46 \text{ COGS} / \$1.00 \text{ Revenue} = \0.46 of COGS for every \$1.00 of Revenue.
 1. You might also see it this way: The Ratio of COGS to Revenue is \$0.46 to \$1.
- 2) When we calculate each Expense on an Income Statement as a percentage of Revenue we are calculating Expense Ratios that we can use to predict next year's expenses for the budgeting process.
 - Each % tells us "how many pennies for each dollar that comes into cash register, goes to each category."
 - Once we calculate these % we can use them to make estimates for future periods (budgeting).
- 3) Great Trick For All Ratios:
 - When we do division or calculate a ratio, if you keep the units in both the numerator and denominator, and, keep a 1 in the denominator, the meaning of the ratio is revealed.
 - Examples:
 1. $\$45,879 \text{ COGS} / \$98,758 \text{ Revenue} = \$0.46 \text{ COGS} / \$1.00 \text{ Revenue} = \0.46 of COGS for every \$1.00 of Revenue
 2. $\$45,879 \text{ Debt} / \$98,758 \text{ Equity} = \$0.46 \text{ Debt} / \$1.00 \text{ Equity} = \0.46 of Debt for every \$1.00 of Equity

ROWS function and Expandable Range to create a Formula Number Incrementor

- 1) ROWS function counts how many rows there are in a range.
 - ROW(A1:A5) reports the answer 5 because there are five rows in the range A1:A5.
- 2) Expandable Ranges become large as you copy them.
 - Example: The range =A\$150:A150 will become =A\$150:A151 when it is copied down a row.
- 3) For incrementing numbers when copying down, use ROWS function.
 - =ROWS(A\$150:A150) and copy it down five rows to get:
 - =ROWS(A\$150:A150) = 1
 - =ROWS(A\$150:A151) = 2
 - =ROWS(A\$150:A152) = 3
 - =ROWS(A\$150:A153) = 4
 - =ROWS(A\$150:A154) = 5
- 4) For incrementing numbers when copying across the columns, use COLUMNS function.
 - =COLUMNS(\$A150:A150) and copy it to the side across five columns to get:
 - =COLUMNS(\$A150:A150) = 1
 - =COLUMNS(\$A150:B150) = 2
 - =COLUMNS(\$A150:C150) = 3
 - =COLUMNS(\$A150:D150) = 4
 - =COLUMNS(\$A150:E150) = 5

Cumulative List of Keyboards Throughout Class:

- 1) **Esc Key:**
 - i. Closes Backstage View (like Print Preview).
 - ii. Closes most dialog boxes.
 - iii. If you are in Edit mode in a Cell, Esc will revert back to what you had in the cell before you put the Cell in Edit mode.
- 2) **F2 Key** = Puts formula in Edit Mode and shows the rainbow colored Range Finder.
- 3) **SUM Function: Alt + =**
- 4) **Ctrl + Shift + Arrow** = Highlight column (Current Region).
- 5) **Ctrl + Backspace** = Jumps back to Active Cell
- 6) **Ctrl + Z** = Undo.
- 7) **Ctrl + Y** = Undo the Undo.
- 8) **Ctrl + C** = Copy.
- 9) **Ctrl + X** = Cut.
- 10) **Ctrl + V** = Paste.
- 11) **Ctrl + PageDown** = expose next sheet to right.
- 12) **Ctrl + PageUp** = expose next sheet to left.
- 13) **Ctrl + 1** = Format Cells dialog box, or in a chart it opens Format Chart Element Task Pane.
- 14) **Ctrl + Arrow**: jumps to the bottom of the "Current Region", which means it jumps to the last cell that has data, right before the first empty cell.
- 15) **Ctrl + Home** = Go to Cell A1.
- 16) **Ctrl + End** = Go to last cell used.
- 17) Alt keyboards are keys that you hit in succession. Alt keyboards are keyboards you can teach yourself by hitting the Alt key and looking at the screen tips.
 - i. Create PivotTable dialog box: **Alt, N, V**
 - ii. Page Setup dialog box: **Alt, P, S, P**
 - iii. Keyboard to open Sort dialog box: **Alt, D, S**
- 18) **ENTER** = When you are in Edit Mode in a Cell, it will put thing in cell and move selected cell DOWN.
- 19) **CTRL + ENTER** = When you are in Edit Mode in a Cell, it will put thing in cell and keep cell selected.
- 20) **TAB** = When you are in Edit Mode in a Cell, it will put thing in cell and move selected cell RIGHT.
- 21) **SHIFT + ENTER** = When you are in Edit Mode in a Cell, it will put thing in cell and move selected cell UP.
- 22) **SHIFT + TAB** = When you are in Edit Mode in a Cell, it will put thing in cell and move selected cell LEFT.
- 23) **Ctrl + T** = Create Excel Table (with dynamic ranges) from a Proper Data Set.
 - i. Keyboard to name Excel Table: **Alt, J, T, A**
 - ii. **Tab** = Enter Raw Data into an Excel Table.
- 24) **Ctrl + Shift + ~ (`)** = General Number Formatting Keyboard.
- 25) **Ctrl + ;** = Keyboard for hardcoding today's date.
- 26) **Ctrl + Shift + ;** = Keyboard for hardcoding current time.
- 27) **Arrow Key** = If you are making a formula, Arrow key will "hunt" for Cell Reference.
- 28) **Ctrl + B** = Bold the Font
- 29) **Ctrl + * (on Number Pad)** or **Ctrl + Shift + 8** = Highlight Current Table.
- 30) **Alt + Enter** = Add Manual Line Break (Word Wrap)
- 31) **Ctrl + P** = Print dialog Backstage View and Print Preview
- 32) **F4 Key** = If you are in Edit mode while making a formula AND your cursor is touching a particular Cell Reference, F4 key will toggle through the different Cell References:
 - i. **A1** = Relative
 - ii. **\$A\$1** = Absolute or "Locked"

- iii. **A\$1** = Mixed with Row Locked (Relative as you copy across the columns AND Locked as you copy down the rows)
 - iv. **\$A1** = Mixed with Column Locked (Relative as you copy down the rows AND Locked as you across the columns)
- 33) **Ctrl + Shift + 4** = Apply Currency Number Formatting
- 34) **Tab key** = When you are selecting a Function from the Function Drop-down list, you can select the function that is highlighted in blue by using the Tab key.
- 35) **F9 Key** = To evaluate just a single part of formula while you are in edit mode, highlight part of formula and hit the F9 key.
- i. If you are creating an Array Constant in your formula: Hit F9.
 - ii. If you are evaluating the formula element just to see what that part of the formula looks like,
REMEMBER: to Undo with Ctrl + Z.
- 36) **Alt, E, A, A** = Clear All (Content and Formatting)
- 37) Evaluate Formula One Step at a Time Keyboard: **Alt, M, V**
- 38) Keyboard to open Sort dialog box: **Alt, D, S**
- 39) **Ctrl + Shift + L** = Filter (or **Alt, D, F, F**) = Toggle key for Filter Drop-down Arrows
- 40) **Ctrl + N** = Open New File
- 41) **F12** = Save As (Change File Name, Location, File Type)
- 42) Import Excel Table into Power Query Editor: **Alt, A, P, T**
- 43) **Ctrl + 1 (When Chart element in selected)**: Open Task Pane for Chart Element

New In This Video:

- 44) **F4 Key** = If you are in Edit mode while making a formula AND your cursor is touching a particular Cell Reference, F4 key will toggle through the different Cell References:
- i. **A1** = Relative
 - ii. **\$A\$1** = Absolute or “Locked”
 - iii. **A\$1** = Mixed with Row Locked (Relative as you copy across the columns AND Locked as you copy down the rows)
 - iv. **\$A1** = Mixed with Column Locked (Relative as you copy down the rows AND Locked as you across the columns)
- 45) Keyboard to open Scenario Manager = **Alt, T, E**
- 46) **Ctrl + Tab** = Toggle between Excel Workbook File Windows
- 47) **Ctrl + Shift + F3** = Create Names From Selection
- 48) **Ctrl + F3** = open Name Manager
- 49) **F3** = Paste Name or List of Names
- 50) **Alt + F4** = Close Active Window
- 51) **Window Key + Up Arrow** = Maximize Active Window