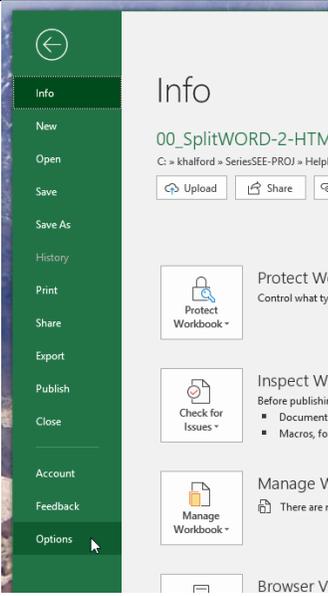
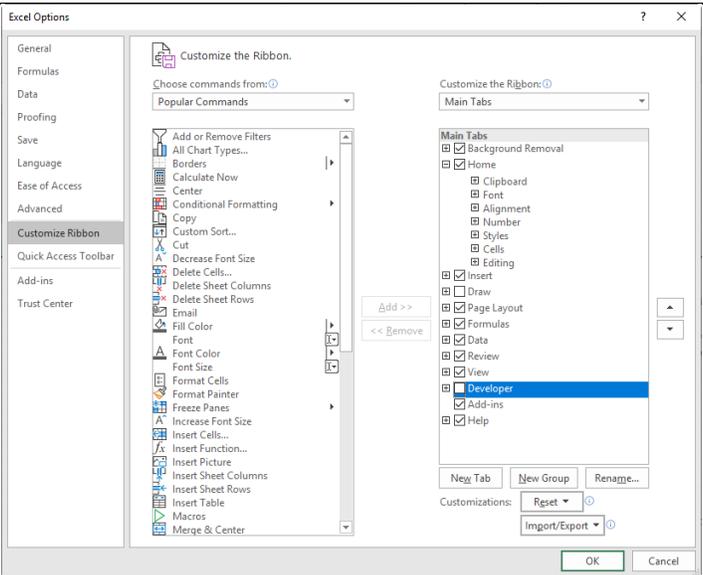


01_ExcelNavigation

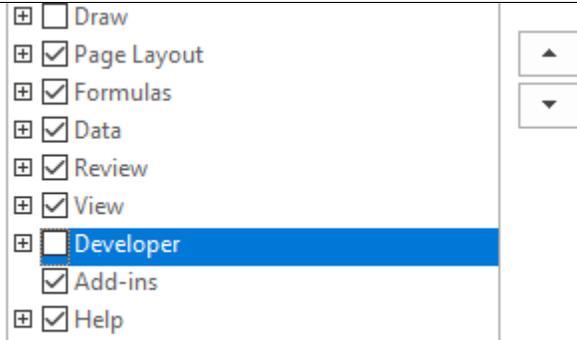
Configure Excel

Usage of Excel can be expedited by modifying default options in Excel for file ribbon settings, directories, and backup. Macro and add-ins can be accessed directly if the Developer tab is visible. The default file directory is a username directory under some "My Documents" folder, which usually goes unused if you navigate through files with Windows Explorer. The automatic backup guarantees that your work will be interrupted every 10 minutes, but likely will not create a recoverable workbook if any complexity exists.

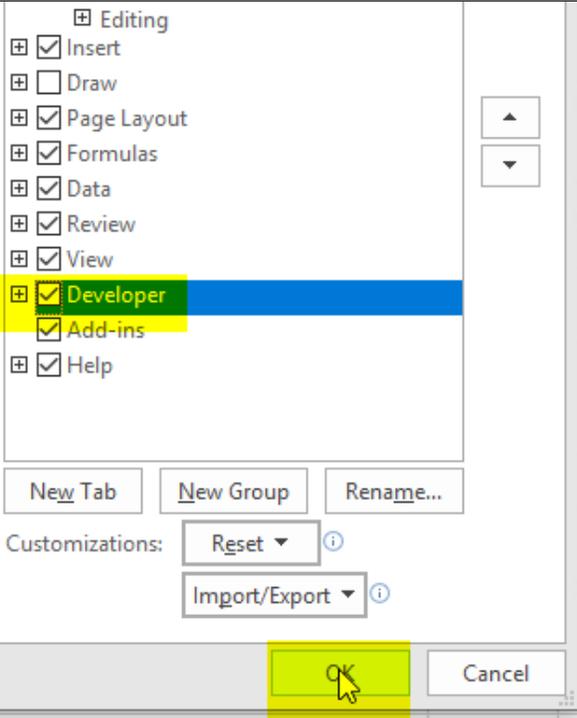
Modify options in Excel

<p>Click on Options under the File menu.</p>	
<p>Select Customize Ribbon on the Excel Options form</p>	

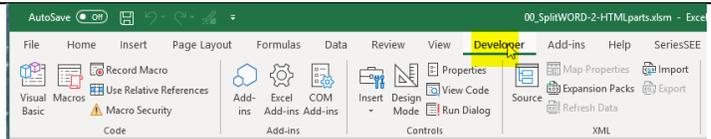
The Developer tab is unchecked by default.



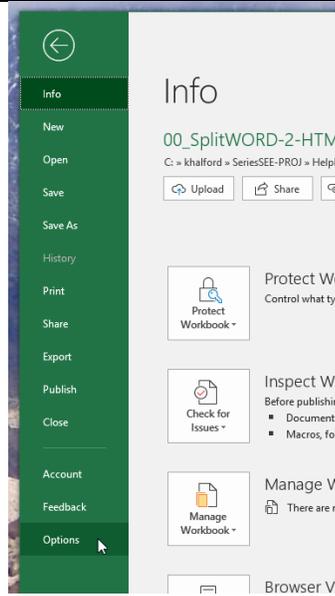
Check the Developer tab and Select OK.



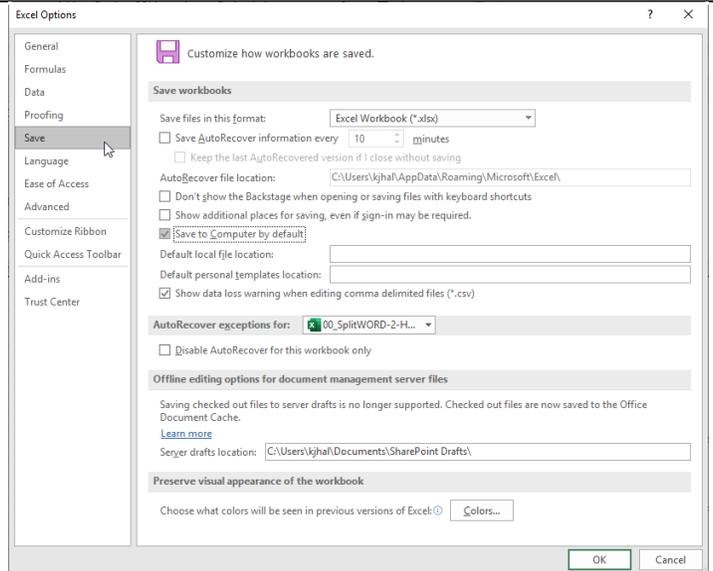
The Developer tab will appear in the ribbon, which gives direct access to controls for macros and Add-Ins.



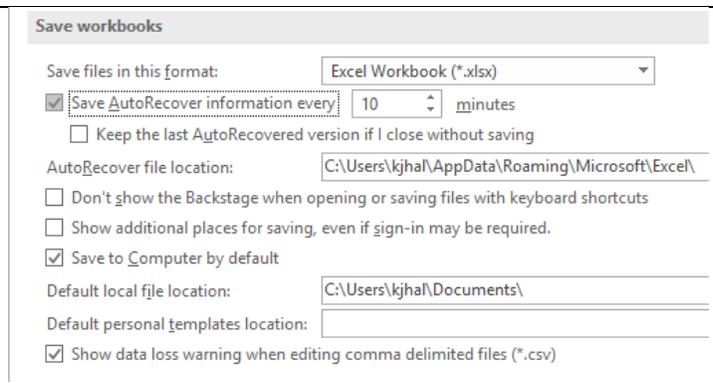
Click on Options under the File menu.



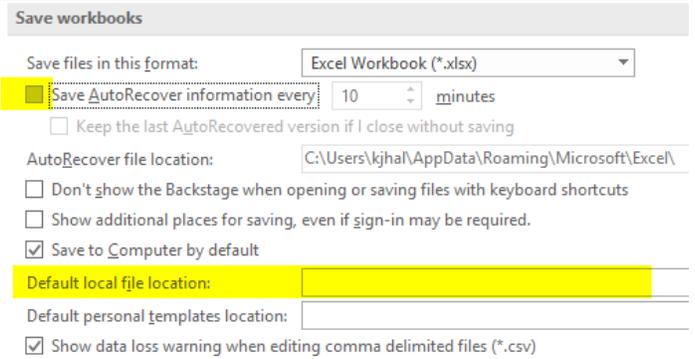
Select Save on the Excel Options form



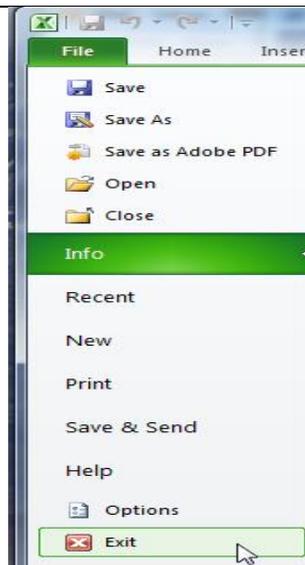
Default options in "Save workbooks"
Save AutoRecover... is checked
A default file location is specified.



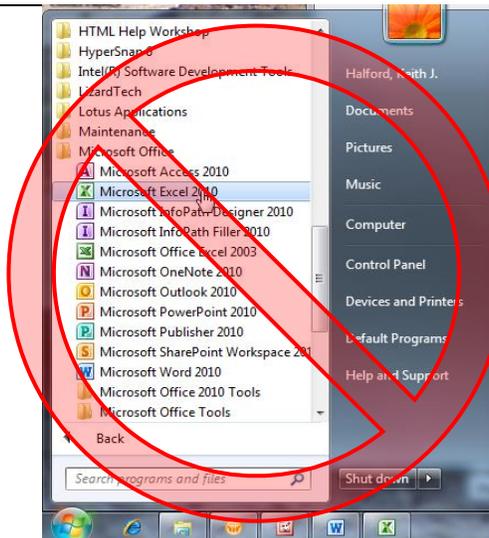
Change options in "Save workbooks"
Uncheck Save AutoRecover...
Delete default file location and
leave BLANK.
Check OK in lower, right corner of form.



Exit Excel completely.
Changes in effect next time Excel is opened.

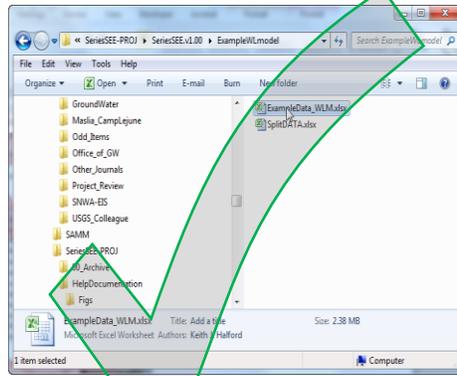


Default file location will be where Excel is
installed if Excel is started from the Windows
Start menu.



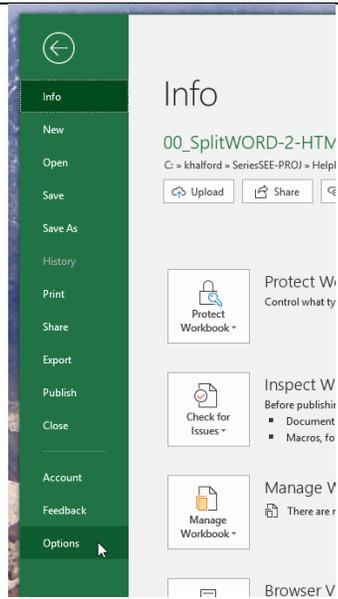
Navigate to the files of interest with Windows Explorer and double-click or right-click to “open with” on the workbook of interest.

The default directory will be where Excel was started.

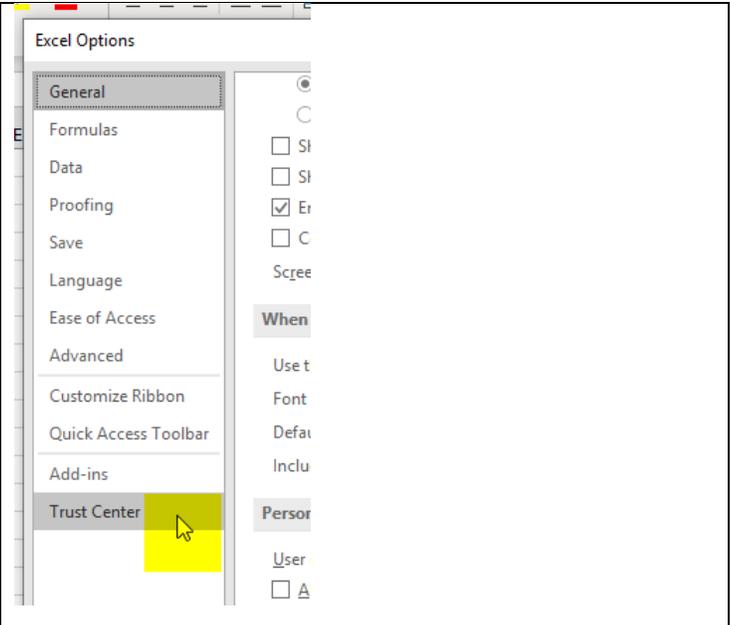


Trusted locations in Excel

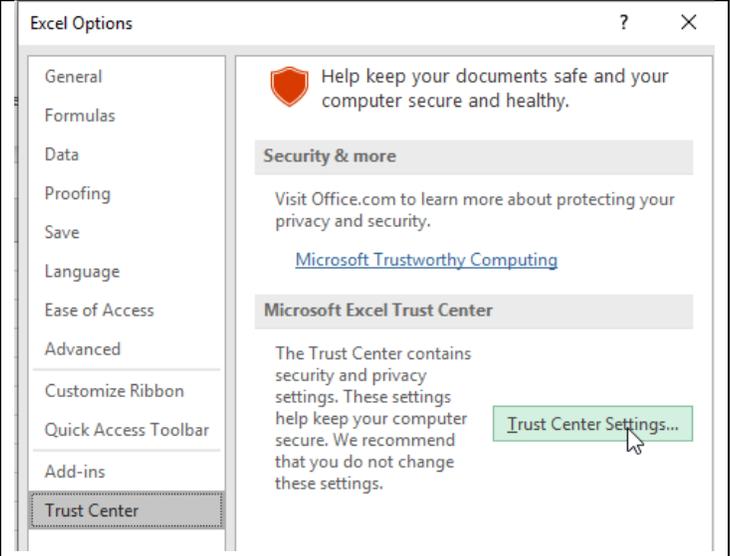
Click on Options under the File menu.



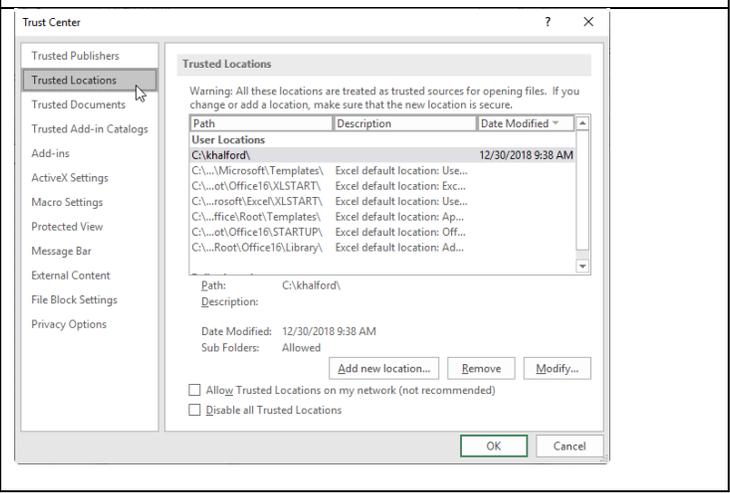
Select Trust Center



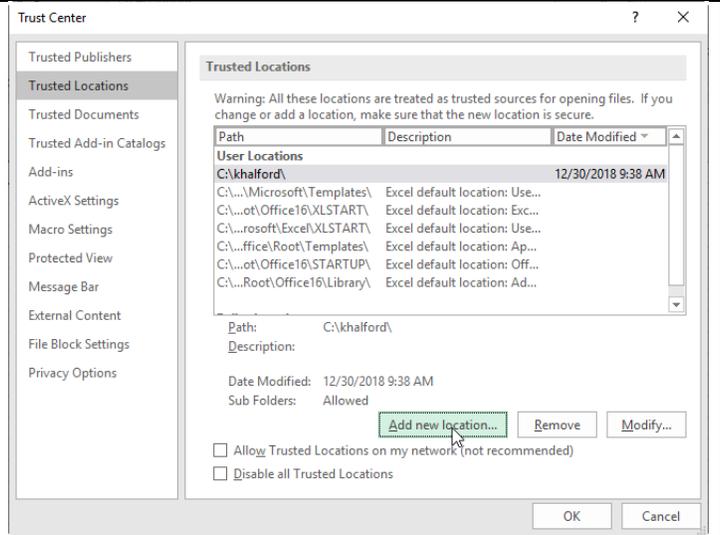
Select Trust Center Settings...



Select Trusted Locations on Trust Center form



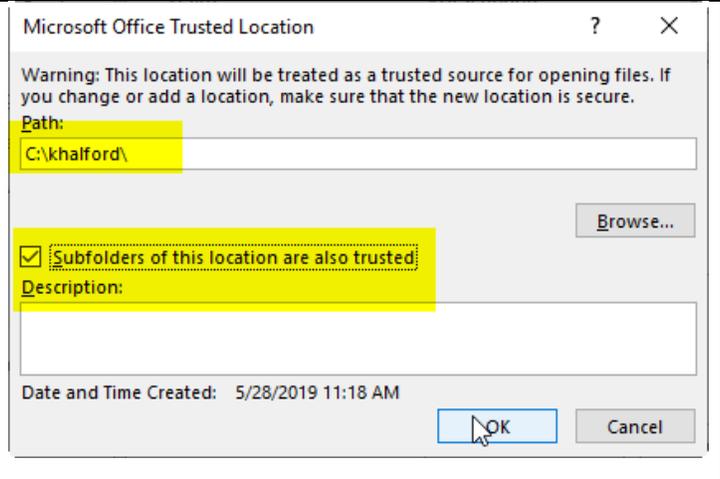
Select Add new location on Trusted Location page of Trust Center form



Add a path to the uppermost directory of your normal working area. This should not be on your desktop.

Check subfolders so all underlying folders are trusted locations.

Click OK on each form until Excel Options is closed.



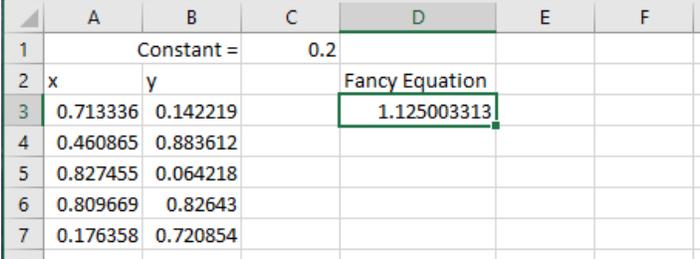
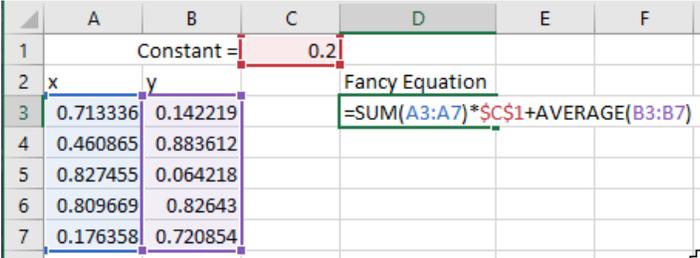
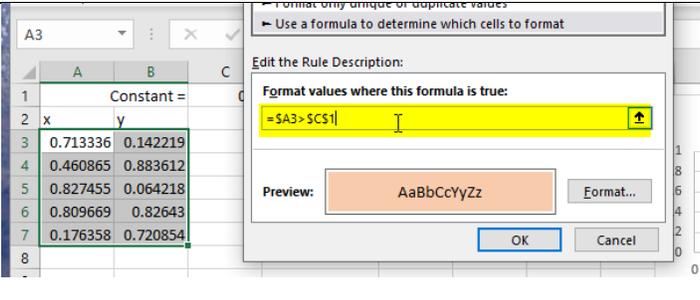
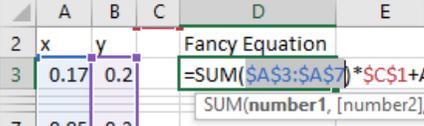
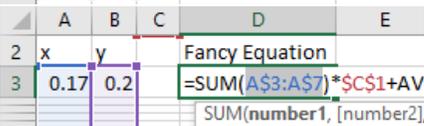
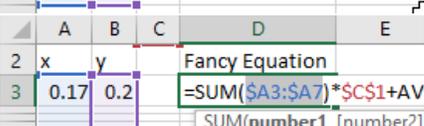
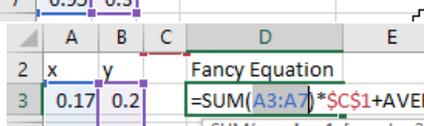
Keyboard Navigation

Keyboard navigation is emphasized principally for quickly navigating and manipulating large blocks of data. A few heavily used function keys and keyboard shortcuts are cited to accelerate work flow.

Navigate and select blocks of data

<p>Arrow key generically refers to 1 of 4 directions, ←, ↑, →, or ↓</p>																																																																																																					
<p>End, arrow – Moves selected cell to edge of data extent in direction of arrow.</p> <p>For example, end, → moves selection from column 1 to column 143.</p>	<p>Before</p> <table border="1" data-bbox="852 657 1023 793"> <thead> <tr> <th></th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.9</td> <td>0.5</td> </tr> <tr> <td>2</td> <td>0.9</td> <td>0.8</td> </tr> </tbody> </table> <p>After</p> <table border="1" data-bbox="1101 657 1300 793"> <thead> <tr> <th></th> <th>EL</th> <th>EM</th> <th>E</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.9</td> <td>0.9</td> <td></td> </tr> <tr> <td>2</td> <td>0.9</td> <td>0.9</td> <td></td> </tr> </tbody> </table>		A	B	1	0.9	0.5	2	0.9	0.8		EL	EM	E	1	0.9	0.9		2	0.9	0.9																																																																																
	A	B																																																																																																			
1	0.9	0.5																																																																																																			
2	0.9	0.8																																																																																																			
	EL	EM	E																																																																																																		
1	0.9	0.9																																																																																																			
2	0.9	0.9																																																																																																			
<p>Hold Shift, End, arrow – Selects cells from start to edge of data extent in direction of arrow. Apply End, arrow twice while holding shift to select a block of data.</p> <p>For example,</p> <ol style="list-style-type: none"> 1) Hold shift 2) end, → 3) end, ↓ <p>Selects 168 rows of 143 columns, which can be copied.</p>	<p>Start</p> <table border="1" data-bbox="841 856 1008 978"> <thead> <tr> <th></th> <th>A</th> <th>B</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.9</td> <td>0.5</td> </tr> <tr> <td>2</td> <td>0.9</td> <td>0.8</td> </tr> </tbody> </table> <p>Finish</p> <table border="1" data-bbox="841 1045 1446 1287"> <thead> <tr> <th></th> <th>EE</th> <th>EF</th> <th>EG</th> <th>EH</th> <th>EI</th> <th>EJ</th> <th>EK</th> <th>EL</th> <th>EM</th> <th>EN</th> <th>EO</th> <th>EP</th> </tr> </thead> <tbody> <tr> <td>164</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.8</td> <td>0.9</td> <td>1</td> <td>0.8</td> <td></td> <td></td> <td></td> </tr> <tr> <td>165</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.8</td> <td>0.9</td> <td>0.8</td> <td></td> <td></td> <td></td> </tr> <tr> <td>166</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.8</td> <td>0.8</td> <td>0.8</td> <td></td> <td></td> <td></td> </tr> <tr> <td>167</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.7</td> <td>0.8</td> <td>0.9</td> <td></td> <td></td> <td></td> </tr> <tr> <td>168</td> <td>0.7</td> <td>0.8</td> <td>0.7</td> <td>0.7</td> <td>0.6</td> <td>0.7</td> <td>0.7</td> <td>0.8</td> <td>0.8</td> <td></td> <td></td> <td></td> </tr> <tr> <td>169</td> <td></td> </tr> </tbody> </table> <p>168R x 143C</p>		A	B	1	0.9	0.5	2	0.9	0.8		EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	164	0.7	0.7	0.7	0.7	0.7	0.8	0.9	1	0.8				165	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.8				166	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8				167	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.9				168	0.7	0.8	0.7	0.7	0.6	0.7	0.7	0.8	0.8				169												
	A	B																																																																																																			
1	0.9	0.5																																																																																																			
2	0.9	0.8																																																																																																			
	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP																																																																																									
164	0.7	0.7	0.7	0.7	0.7	0.8	0.9	1	0.8																																																																																												
165	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.9	0.8																																																																																												
166	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.8	0.8																																																																																												
167	0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.8	0.9																																																																																												
168	0.7	0.8	0.7	0.7	0.6	0.7	0.7	0.8	0.8																																																																																												
169																																																																																																					
<p>Extent selected</p> <p>Shown in Name box if selection in visible screen.</p>	<p>5R x 4C</p> <p>Name Box</p> <table border="1" data-bbox="768 1402 1247 1640"> <thead> <tr> <th></th> <th>A</th> <th>B</th> <th>C</th> <th>D</th> <th>E</th> <th>F</th> <th>G</th> <th>H</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>0.9</td> <td>0.9</td> <td>0.8</td> <td>0.8</td> <td>0.8</td> <td>0.9</td> <td>1</td> <td>0.9</td> </tr> <tr> <td>2</td> <td>0.9</td> <td>0.8</td> <td>0.9</td> <td>0.8</td> <td>0.8</td> <td>0.9</td> <td>1</td> <td>0.9</td> </tr> <tr> <td>3</td> <td>0.9</td> <td>0.8</td> <td>0.9</td> <td>0.9</td> <td>0.8</td> <td>0.8</td> <td>0.9</td> <td>0.9</td> </tr> <tr> <td>4</td> <td>0.9</td> <td>0.9</td> <td>1</td> <td>0.9</td> <td>0.9</td> <td>0.9</td> <td>0.9</td> <td>0.9</td> </tr> <tr> <td>5</td> <td>0.9</td> <td>0.9</td> <td>1</td> <td>0.9</td> <td>0.9</td> <td>0.9</td> <td>0.9</td> <td>0.9</td> </tr> <tr> <td>6</td> <td>1</td> <td>0.9</td> <td>1</td> <td>0.9</td> <td>0.9</td> <td>1</td> <td>0.9</td> <td>0.9</td> </tr> </tbody> </table>		A	B	C	D	E	F	G	H	1	0.9	0.9	0.8	0.8	0.8	0.9	1	0.9	2	0.9	0.8	0.9	0.8	0.8	0.9	1	0.9	3	0.9	0.8	0.9	0.9	0.8	0.8	0.9	0.9	4	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	5	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9	6	1	0.9	1	0.9	0.9	1	0.9	0.9																																					
	A	B	C	D	E	F	G	H																																																																																													
1	0.9	0.9	0.8	0.8	0.8	0.9	1	0.9																																																																																													
2	0.9	0.8	0.9	0.8	0.8	0.9	1	0.9																																																																																													
3	0.9	0.8	0.9	0.9	0.8	0.8	0.9	0.9																																																																																													
4	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9																																																																																													
5	0.9	0.9	1	0.9	0.9	0.9	0.9	0.9																																																																																													
6	1	0.9	1	0.9	0.9	1	0.9	0.9																																																																																													
<p>Extent selected</p> <p>Shown in floating frame at lower, right corner for large arrays.</p>	<table border="1" data-bbox="768 1675 1179 1850"> <thead> <tr> <th></th> <th>EK</th> <th>EL</th> <th>EM</th> <th>EN</th> <th>EO</th> <th>EP</th> </tr> </thead> <tbody> <tr> <td>167</td> <td>0.7</td> <td>0.8</td> <td>0.9</td> <td></td> <td></td> <td></td> </tr> <tr> <td>168</td> <td>0.7</td> <td>0.8</td> <td>0.8</td> <td></td> <td></td> <td></td> </tr> <tr> <td>169</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table> <p>168R x 143C</p>		EK	EL	EM	EN	EO	EP	167	0.7	0.8	0.9				168	0.7	0.8	0.8				169																																																																														
	EK	EL	EM	EN	EO	EP																																																																																															
167	0.7	0.8	0.9																																																																																																		
168	0.7	0.8	0.8																																																																																																		
169																																																																																																					

Function keys

<p>F2—Open a cell for editing.</p> <ol style="list-style-type: none"> Useful for mapping dependent cells Building complex equations by allowing parts to be tested independently. 	<p>Prior to entering F2</p>  <p>After entering F2</p> 
<p>F2—Toggles between visual and text editing in forms.</p> <p>Visual editing—Left, right arrows move cell reference.</p> <p>Text editing—Left, right arrows move text edit focus within dialog box.</p>	
<p>F4—Toggles through 4 states of cell references being relative or absolute. Starts with cell reference being absolute for rows and cells.</p>	<ol style="list-style-type: none">    
<p>F9</p>	<p>Manually force a calculation cycle.</p>

Alt+F8	Open a list of macros that can be executed.
Alt+F11	Open the VBA editor.

Common shortcuts

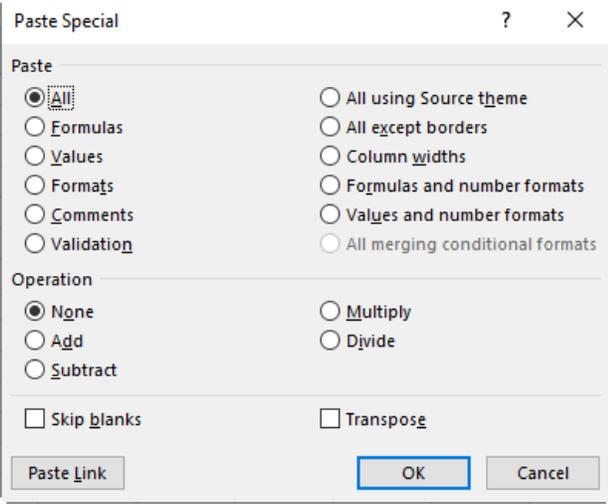
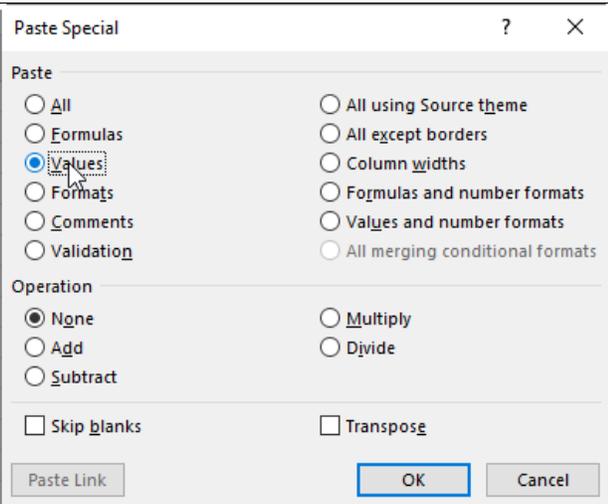
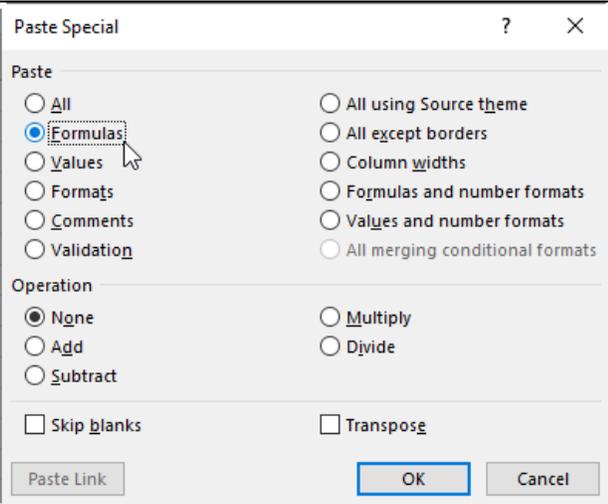
Ctrl+1	Open form or dialog for formatting cells or chart features depending on current selection.
Ctrl+K	Open dialog for creating/editing/deleting hyperlinks.
Ctrl+wheel	Alter magnification of workbook with mouse wheel.
Ctrl+Home	Goes to upper, left cell A1 on an active worksheet.
Ctrl+End	Goes to lower, rightmost cell used on an active worksheet. Not a reliable command if much cutting and deleting of data.
Ctrl+PageUp	Activate next worksheet to left.
Ctrl+PageDown	Activate next worksheet to right.
ALT, f, n, l	Open a new workbook.
ALT+TAB	Toggle between open applications in Windows.

Many sites exist with exhaustive lists of shortcuts. Search for “keyboard shortcuts Excel” to find what you consider helpful. Two examples are,

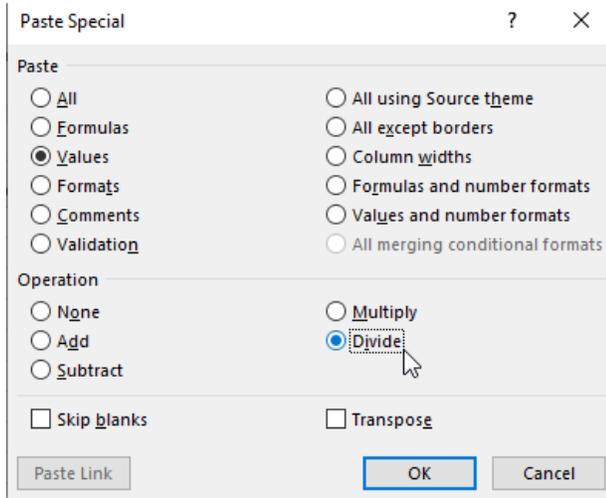
<https://support.office.com/en-us/article/keyboard-shortcuts-in-excel-for-windows-1798d9d5-842a-42b8-9c99-9b7213f0040f>

https://shortcutworld.com/Excel/win/Microsoft-Excel_2016_Shortcuts

Paste Special

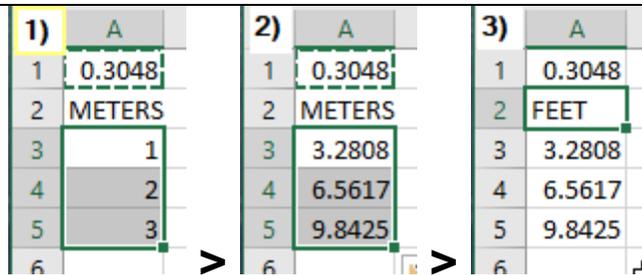
<p>Short cuts for opening form</p> <p>Old sequence -- ALT, e, s Current sequence-- ALT, h, v, s</p>	 <p>The screenshot shows the 'Paste Special' dialog box with the 'All' option selected under the 'Paste' section. Other options include Formulas, Values, Formats, Comments, Validation, All using Source theme, All except borders, Column widths, Formulas and number formats, Values and number formats, and All merging conditional formats. Under 'Operation', 'None' is selected, with 'Multiply' and 'Divide' also available. There are checkboxes for 'Skip blanks' and 'Transpose', and buttons for 'Paste Link', 'OK', and 'Cancel'.</p>
<p>Values – Cleanest way to paste data without changing format of receiving worksheet.</p> <p>Converts formula results to numeric or text entries.</p>	 <p>The screenshot shows the 'Paste Special' dialog box with the 'Values' option selected under the 'Paste' section. The rest of the dialog box, including the 'Operation' section and buttons, is identical to the first screenshot.</p>
<p>Formulas— Apply equations and numbers without altering formatting.</p>	 <p>The screenshot shows the 'Paste Special' dialog box with the 'Formulas' option selected under the 'Paste' section. The rest of the dialog box, including the 'Operation' section and buttons, is identical to the previous screenshots.</p>

Operation – Apply basic math operation uniformly to a selected range.



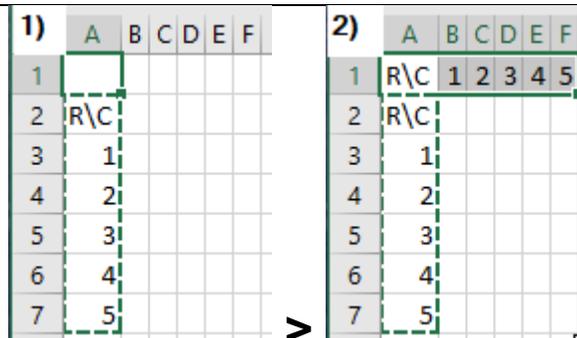
For example,
Convert meters to feet with Paste Special.

- 1) Copy A1, Select A3:A5.
- 2) Paste special as values & Divide.
- 3) Change METERS to FEET in A2.



Transpose – Flips rows and columns.

- 1) Copy A2:A7, Select A1
- 2) Paste special with Transpose checked.



Customize Status Bar

The status bar is the lower edge Excel application frame (Figure 1). Several options exist for quick assessments of data arrays.

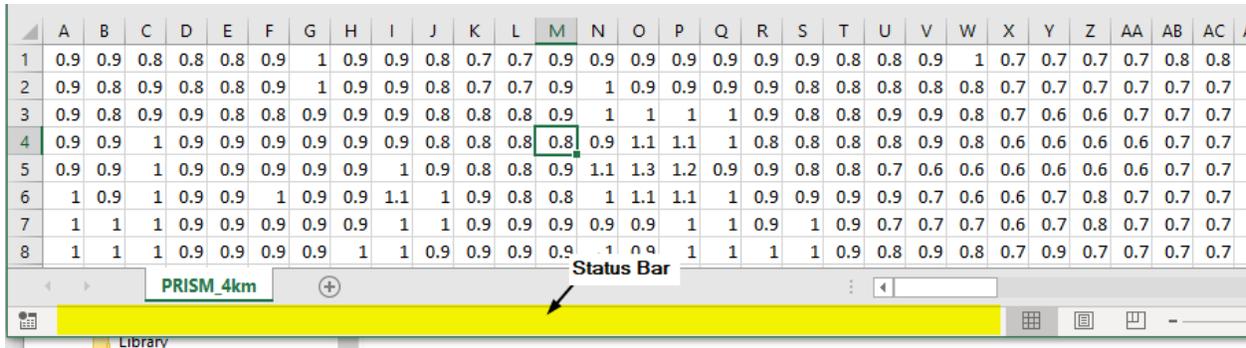


Figure 1.--Status bar in Excel.

Right-click the status bar to display the Customize Status Bar form (Figure 2). Check the highlighted average, count, numerical count, minimum, maximum, and sum options that summarize numeric data in multi-cell selections.

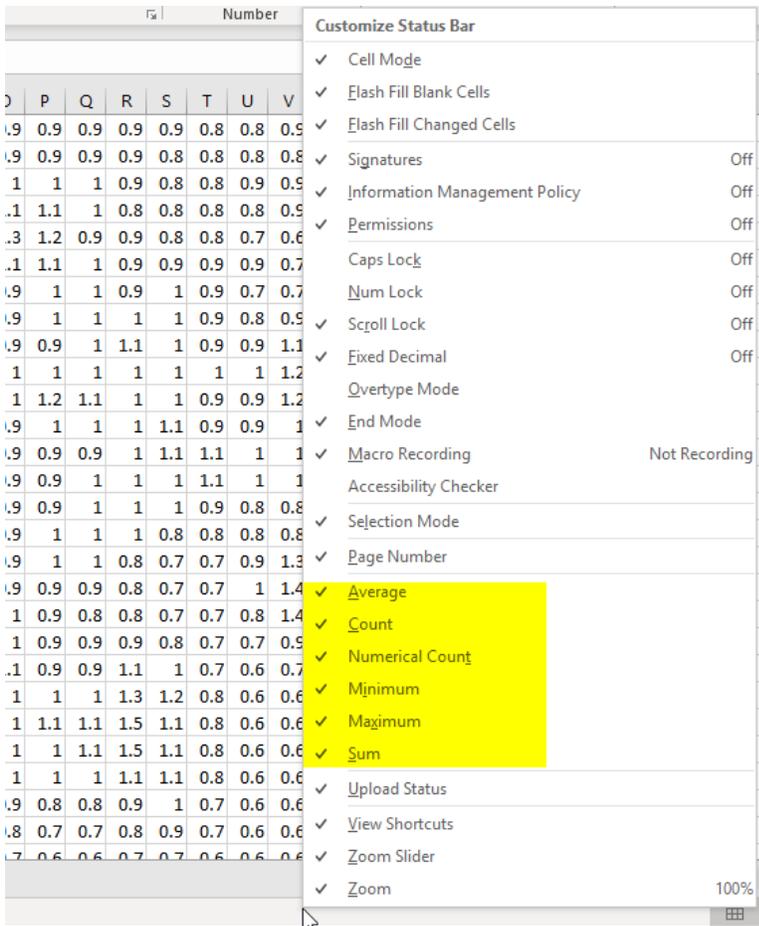


Figure 2.—Right-click to display Customize Status Bar form.

Select a range and statistics are reported in the Status Bar (Figure 3). This approach quickly defines range of values and outliers, such as null values, in large arrays.

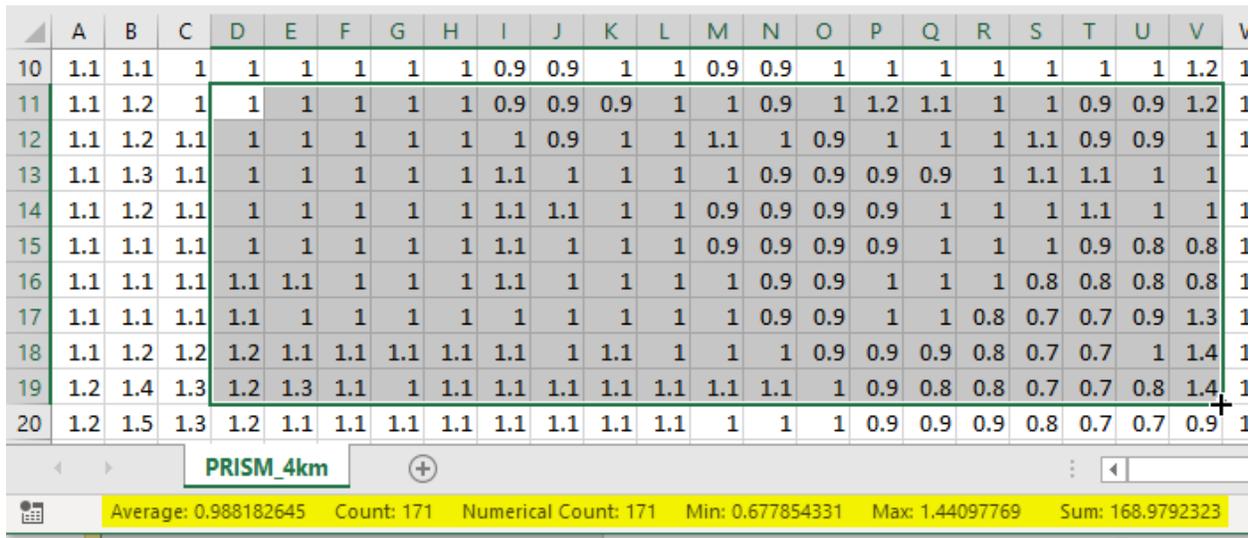


Figure 3.— Average, count, numerical count, minimum, maximum, and sum of selected range are reported in Status Bar.

Count and numerical count will agree if all entries are values (Figure 4).

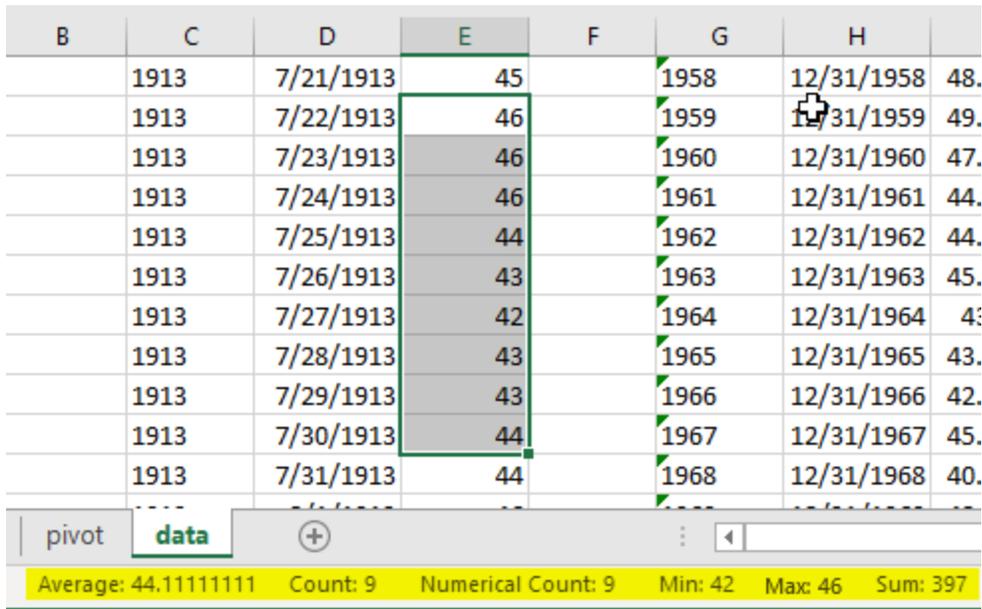


Figure 4.— Average, count, numerical count, minimum, maximum, and sum of selected range are reported in Status Bar.

Count and numerical count will differ non-numeric entries occur in the selected range (Figure 5). Empty cells are counted as numeric values.

B	C	D	E	F	G	H	
	1913	7/21/1913	45		1958	12/31/1958	48.
	1913	7/22/1913	46		1959	12/31/1959	49.
	1913	7/23/1913	46		1960	12/31/1960	47.
	1913	7/24/1913	46		1961	12/31/1961	44.
	1913	7/25/1913	xxx		1962	12/31/1962	44.
	1913	7/26/1913	43		1963	12/31/1963	45.
	1913	7/27/1913	42		1964	12/31/1964	4:
	1913	7/28/1913	43		1965	12/31/1965	43.
	1913	7/29/1913	43		1966	12/31/1966	42.
	1913	7/30/1913	44		1967	12/31/1967	45.
	1913	7/31/1913	44		1968	12/31/1968	40.

pivot data +

Average: 44.125 Count: 9 Numerical Count: 8 Min: 42 Max: 46 Sum: 353

Figure 5.—Count and numerical count differ because non-numeric data occurs in the selected range.

Lack of reported average, minimum, maximum, and sum indicate an error condition occurs in the selected range (Figure 6). Errors from dividing by zero and failure results from functions such as MATCH, FIND, or VLOOKUP all stop reporting of sums. Fast check for hidden errors.

B	C	D	E	F	G	H	
	1913	7/21/1913	45		1958	12/31/1958	48.
	1913	7/22/1913	46		1959	12/31/1959	49.
	1913	7/23/1913	46		1960	12/31/1960	47.
	1913	7/24/1913	46		1961	12/31/1961	44.
	1913	7/25/1913	#DIV/0!		1962	12/31/1962	44.
	1913	7/26/1913	43		1963	12/31/1963	45.
	1913	7/27/1913	42		1964	12/31/1964	4:
	1913	7/28/1913	43		1965	12/31/1965	43.
	1913	7/29/1913	43		1966	12/31/1966	42.
	1913	7/30/1913	44		1967	12/31/1967	45.
	1913	7/31/1913	44		1968	12/31/1968	40.

pivot data +

Count: 9 Numerical Count: 8

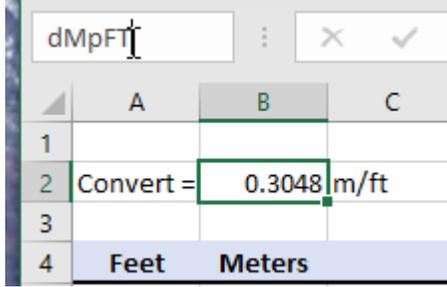
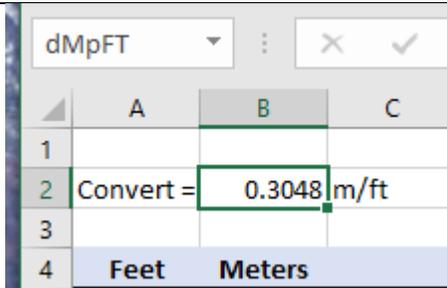
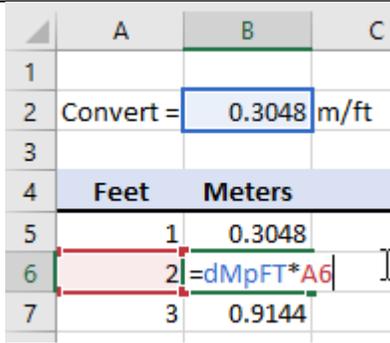
Figure 6.— Average, minimum, maximum, and sum results are not reported if an error condition occurs in the selected range.

Named Ranges and Data Validation

Named ranges are useful for defining constants and validating data from lists. Named ranges can be created through the name box or Name manager form (**Alt, m, n**).

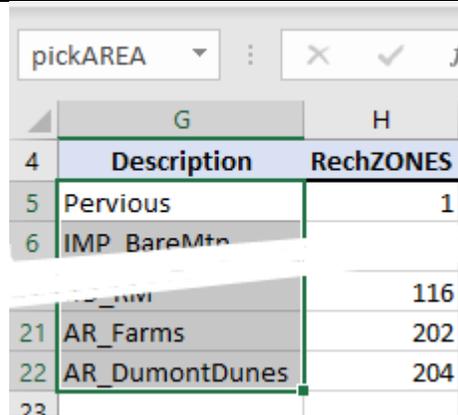
Named constants are typically a single value such as a conversion factor, gravitational acceleration, etc. Named ranges of lists ensure exact matches when used with [data validation](#) (**Alt, d, l**).

Named Ranges

<p>Define a constant by</p> <ol style="list-style-type: none"> 1) Selecting a cell, B2 in example. 2) Enter name in Name Box, dMpFT. 3) Hit return. 	
<p>Name appears in Name Box when named range is selected.</p>	
<p>Name appears, instead of \$B\$2, when equation is opened for editing.</p>	

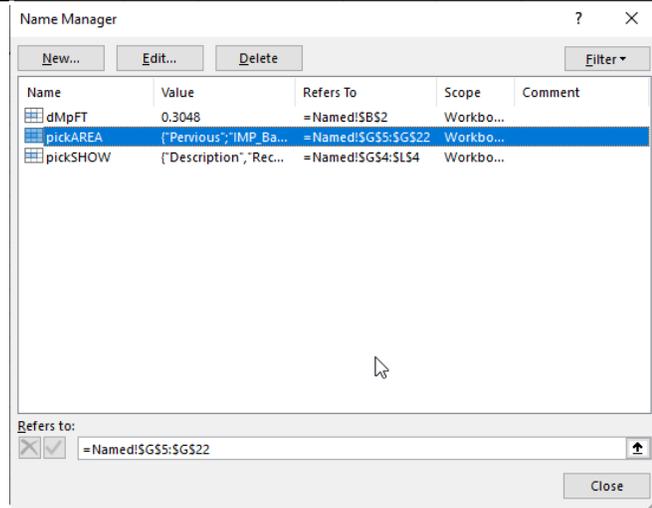
Define a list by

- 1) Selecting multiple cells in a single row or single column, cells G5:G22 in example.
- 2) Enter name in Name Box, pickAREA.
- 3) Hit return.



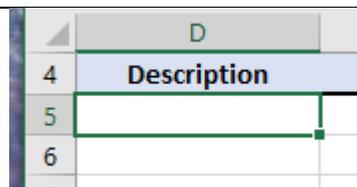
Names can be created, edited, and deleted with the Name Manager form.

Short cut – **ALT, m, n**



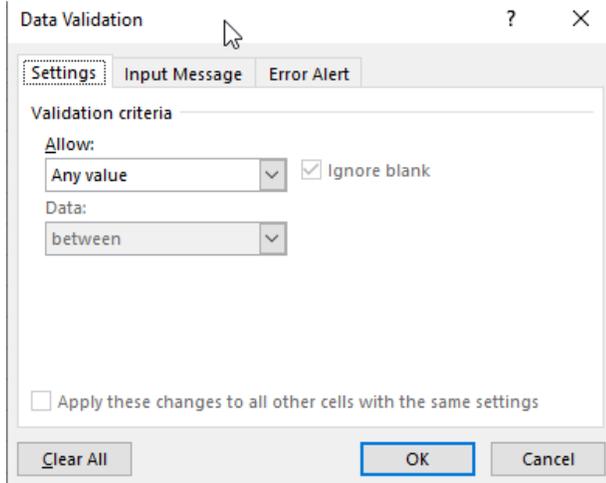
Data Validation

Apply data validation to cell D5.

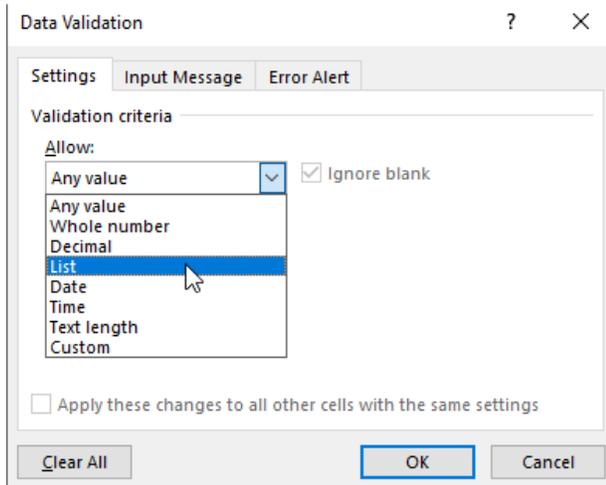


Open Data Validation form

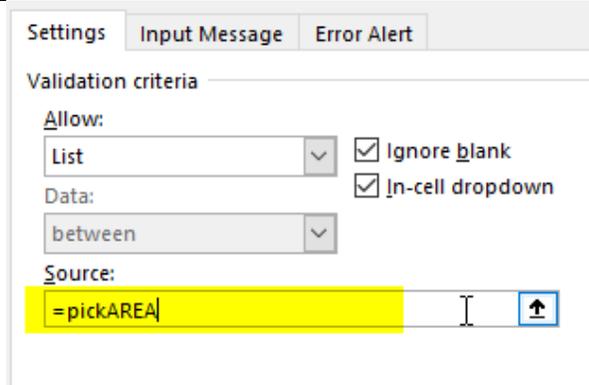
Short cut – ALT, d, l



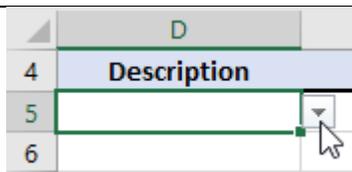
Select list from entries to be allowed.



Type “=pickAREA” in the Source dialog.
pickAREA is the named range that was defined previously.



A pull-down tab appears when cell D5 is selected because of the list validation.



List of entries from named range pickAREA appears when pull-down tab is selected.
 Alternatively, type **ALT+↓** to show the list.

4	Description
5	
6	Pervious
7	IMP_BareMtn
8	IMP_Resting
9	IMP_Groom
10	IMP_Groom-W
11	RO_Kingston
12	RO_SheepS
13	AR_Beatty2Farms

Data validation assures exact match in functions such as VLOOKUP and MATCH when they depend on values in cell D5.

	D	E	F	G	H
3		6			
4	Description	Rate, ft/yr		Description	RechZONES
5	IMP_Groom	=VLOOKUP(D5,\$G\$5:\$L\$37,E\$3,0)			1
6				IMP_BareMtn	6
7				IMP_Resting	10
8				IMP_Groom	14
9				IMP_Groom-W	18
10				RO_Kingston	111
11				RO_SheepS	115
12				AR_Beatty2Farms	201