

The Data Journalist

Chapter 4 tutorial

Doing Cool Stuff with Paste Special

Summary: Paste special is like the paste command, but with some extra twists. This tutorial will show you how to use paste special in Microsoft Excel for the following common tasks. The functionality in OpenOffice is basically identical, so you should be able to follow these directions.

What you will learn:

1. Replacing a column or row of formulas with the values that the formulas produce.
2. Copying a pivot table to a new worksheet as a plain table.
3. Transposing the rows and columns of a worksheet.
4. Multiplying or dividing a range of values by another value.

Task 1: Replacing a column or row of formulas with the values that the formulas produce.

Downloadable data: You can [download sample data](#) for this task. It contains the salaries of Ontario public sector servants who earn more than \$100,000 a year for the years fiscal years 2015 to 2018. It is also the dataset that we'll be using for our live exercise based on a published story.

Sector	Last Name	First Name	Salary Paid	Taxable Benefits	Total Salary	Employer
Colleges	Jensen	Cheryl	337533.24	3408.12	\$340,941	Algonquin College
Colleges	Brule	Claude	230976.76	374.96	\$231,352	Algonquin College
Colleges	Wotherspoon	Doug	230788.38	186.58	\$230,975	Algonquin College
Colleges	Mcnaire	Duane	221744.64	366.12	\$222,111	Algonquin College
Colleges	Stanbra	Laura	221744.64	366.12	\$222,111	Algonquin College
Colleges	Anderson	Scott	194628.02	331.04	\$194,959	Algonquin College
Colleges	Mclester	Ronald	191833.46	161.82	\$191,995	Algonquin College
Colleges	Pollock	Lois	177265.71	273.41	\$177,539	Algonquin College
Colleges	Leduc	Mark	169073.33	310.33	\$169,384	Algonquin College
Colleges	Frederick	Catherine	168347.03	131.3	\$168,478	Algonquin College
Colleges	Mccutcheon	Diane	166846.12	188.64	\$167,035	Algonquin College
Colleges	Schonewille	Todd	164726.07	304.41	\$165,030	Algonquin College
Colleges	Janzen	Christopher	163593.81	293.89	\$163,888	Algonquin College
Colleges	Foulds	Barbara	160742.83	137.91	\$160,881	Algonquin College
Colleges	Tosh	Marlene	160044.73	0	\$160,045	Algonquin College
Colleges	Devey	Patrick	159588.61	137.19	\$159,726	Algonquin College
Colleges	Kyte	James Gregory	158873.7	290.78	\$159,164	Algonquin College
Colleges	Davies	Karen	158873.7	290.78	\$159,164	Algonquin College
Colleges	Donaldson	Dave	158719.79	136.87	\$158,857	Algonquin College
Colleges	Cusson	Margaret	158316.36	287.94	\$158,604	Algonquin College
Colleges	Pearson	Krista	157216.81	280.64	\$157,497	Algonquin College
Colleges	Heaton	Robyn	156696.72	134.8	\$156,832	Algonquin College
Colleges	Brownlee	Brent	153013.7	277.53	\$153,291	Algonquin College
Colleges	Mulvey	Ernest	150511.63	275.46	\$150,787	Algonquin College
Colleges	Denier	Joe	140811.62	275.46	\$140,812	Algonquin College

In column F, we have added the values in columns D and E to obtain a total salary. By clicking on the first value in the column, we can see the formula in the formula bar.

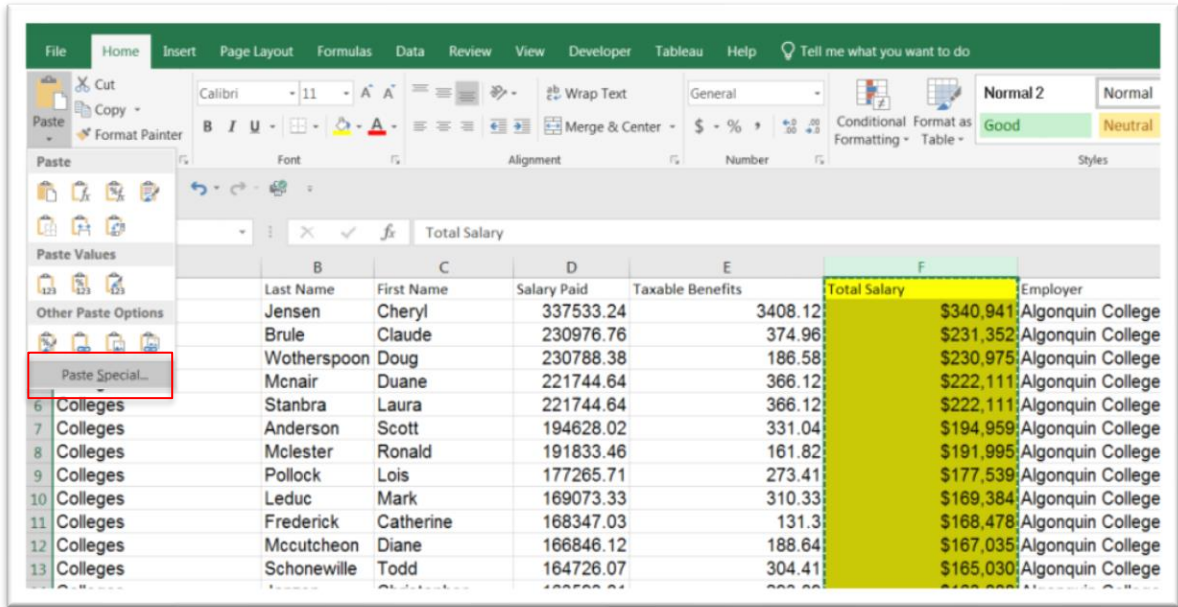
Let's say that we only wanted to preserve the values and get rid of the formula that created them. Switching to the underlying values calculated by the formula is simple.

First, highlight the column of formulas.

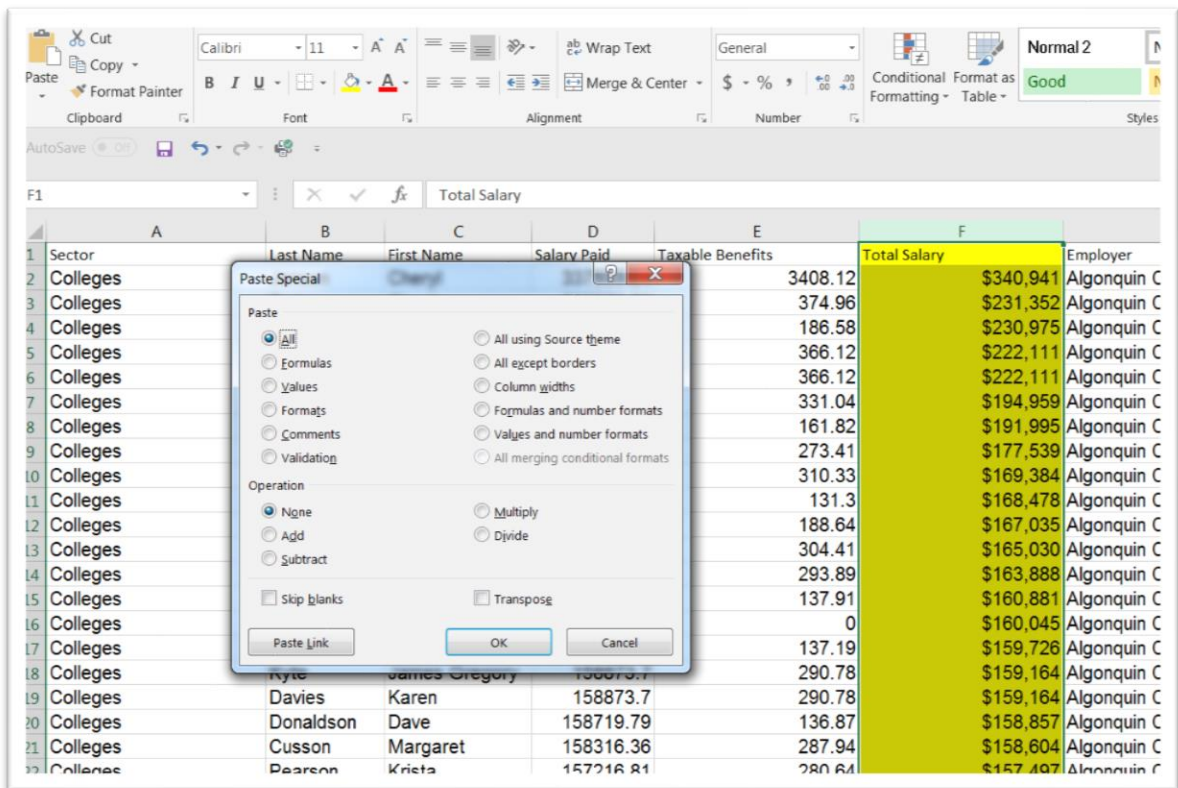
Sector	Last Name	First Name	Salary Paid	Taxable Benefits	Total Salary	Employer
Colleges	Jensen	Cheryl	337533.24	3408.12	\$340,941	Algonquin College

Next, copy the highlighted column to the clipboard by using the keyboard shortcut <CTRL> C on a Windows PC or <CMD> C on a Mac, or by right clicking on the column (<CTRL> left click on a Mac) and choosing Copy from the pop-up menu.

Once you have copied the column to the clipboard, choose Paste Special from the "paste" dropdown menu on the home ribbon of Excel. A dialogue box should open, like this one:



You can also right click on highlighted the column and choose Paste Special from the pop-up menu.



In the dialogue, in the Paste area, choose the “Values” radio button. Click OK.

2015-combined-salary-seconded-utf8-en_3.xlsx - Excel

File Data Review View Developer Tableau Tell me what you want to do

Wrap Text General

Paste Special

Paste

- All
- Formulas
- Values
- Formats
- Comments
- Validation
- All using Source theme
- All except borders
- Column widths
- Formulas and number formats
- Values and number formats
- All merging conditional formats

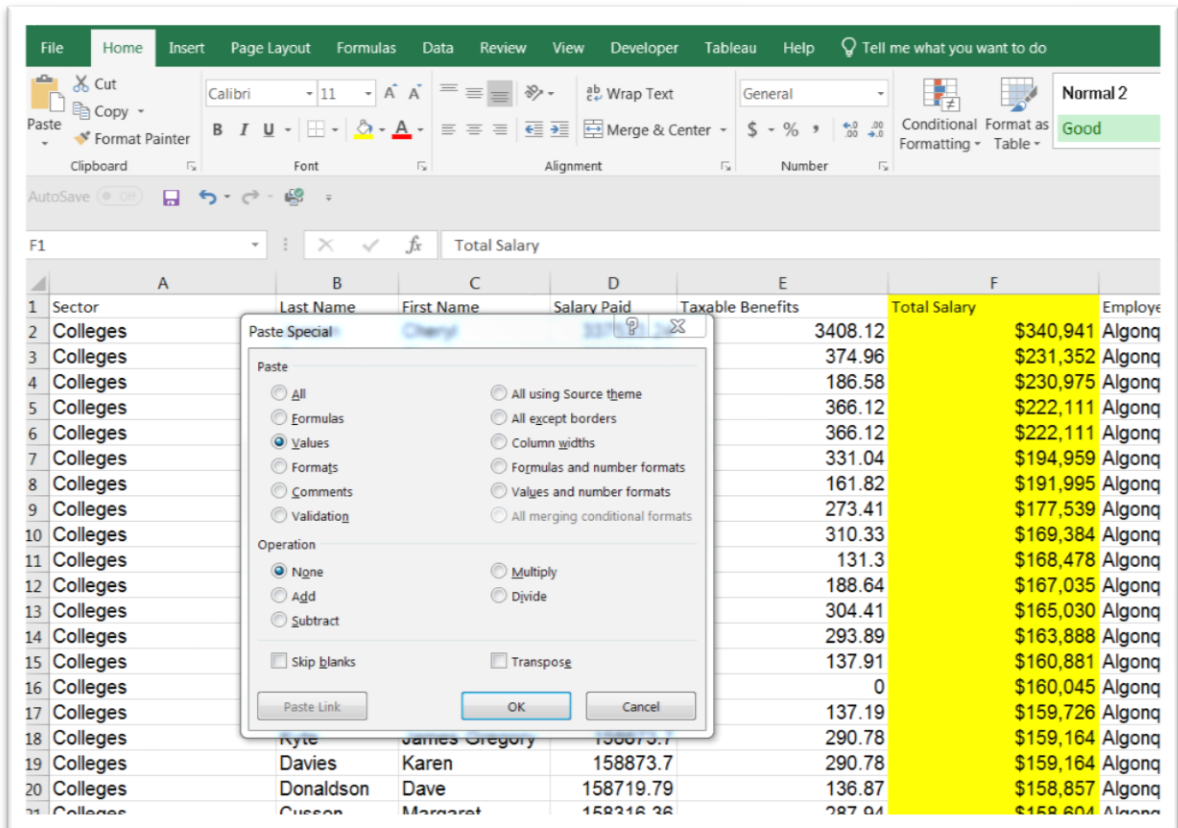
Operation

- None
- Add
- Subtract
- Multiply
- Divide

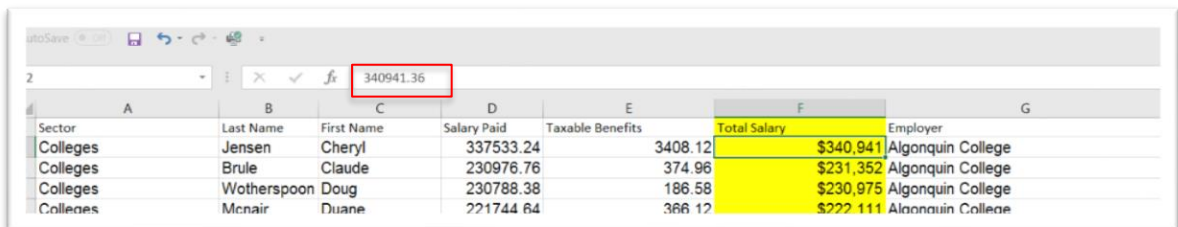
Skip blanks Transpose

Paste Link OK Cancel

				Employer
				29 Toronto Fe
				89 Mitacs Inc.
				71 Toronto Fe
				47 Colleges O
				02 Mitacs Inc.
				55 Toronto Fe
				68 Toronto Or
				76 King's Univ
				06 Algonquin C
				04 Algonquin C
				59 Algonquin C
effery M.	\$121,234.72	\$304.47	\$121,539.19	Algonquin C
bdul	\$107,920.20	\$115.32	\$108,035.52	Algonquin C
oug	\$106,084.10	\$129.56	\$106,213.66	Algonquin C
abah	\$100,522.70	\$129.56	\$100,652.26	Algonquin C



Your formulas have now been replaced by as the underlying values. When you once again click on F2, you'll see the value in the formula bar, and not the formula $\langle =D2+E2 \rangle$.



Task 2: Copying a pivot table to a new worksheet as a plain table.

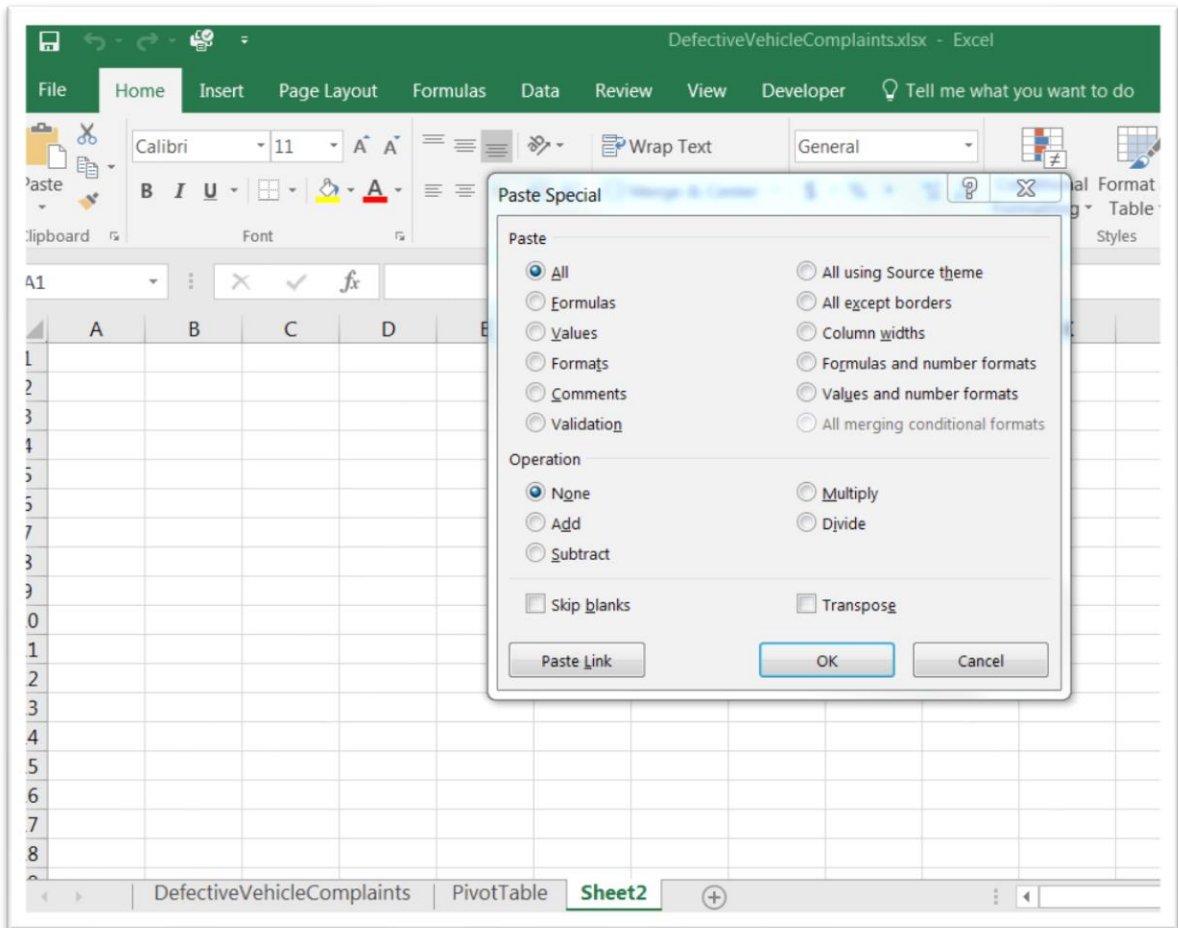
Downloadable data: You can download the sample data for this task [here](#) and use the worksheet called PivotTable.

Row Labels	2011	2012	2013	2014	2015	Grand Total
Engine	296	291	395	885	1,160	3,027
Restraint System	216	214	213	541	836	2,020
Steering	208	189	257	637	676	1,967
Structure	210	238	204	483	706	1,841
Brake System	217	155	173	467	729	1,741
Powertrain	122	181	178	363	636	1,480
Fuel System	155	147	181	389	446	1,318
Electrical	106	108	123	429	550	1,316
Suspension	103	87	90	248	498	1,026
Interior	91	97	86	235	368	877
Lighting	86	102	95	208	246	737
Visual System	46	42	52	147	216	503
Child Restraint System	47	56	50	126	168	447
Tire	58	49	37	116	162	422
Accessory	42	63	60	88	92	345

Pivot tables are great, but they eat up memory if you have a lot of them open at once. Besides, once you've finished your pivot table, you may be most interested in the results. Making a copy of the table as a plain text table is a great way to capture your results, perhaps for further calculations.

Copy the table, and go to the next empty worksheet.

As we did in task one, get the paste special dialogue box.



Select Values, and then the OK tab.

DefectiveVehicleComplaints.xlsx - Excel

File Home Insert Page Layout Formulas Data Review View Developer Tell me what you want to do

Clipboard Font Alignment Number

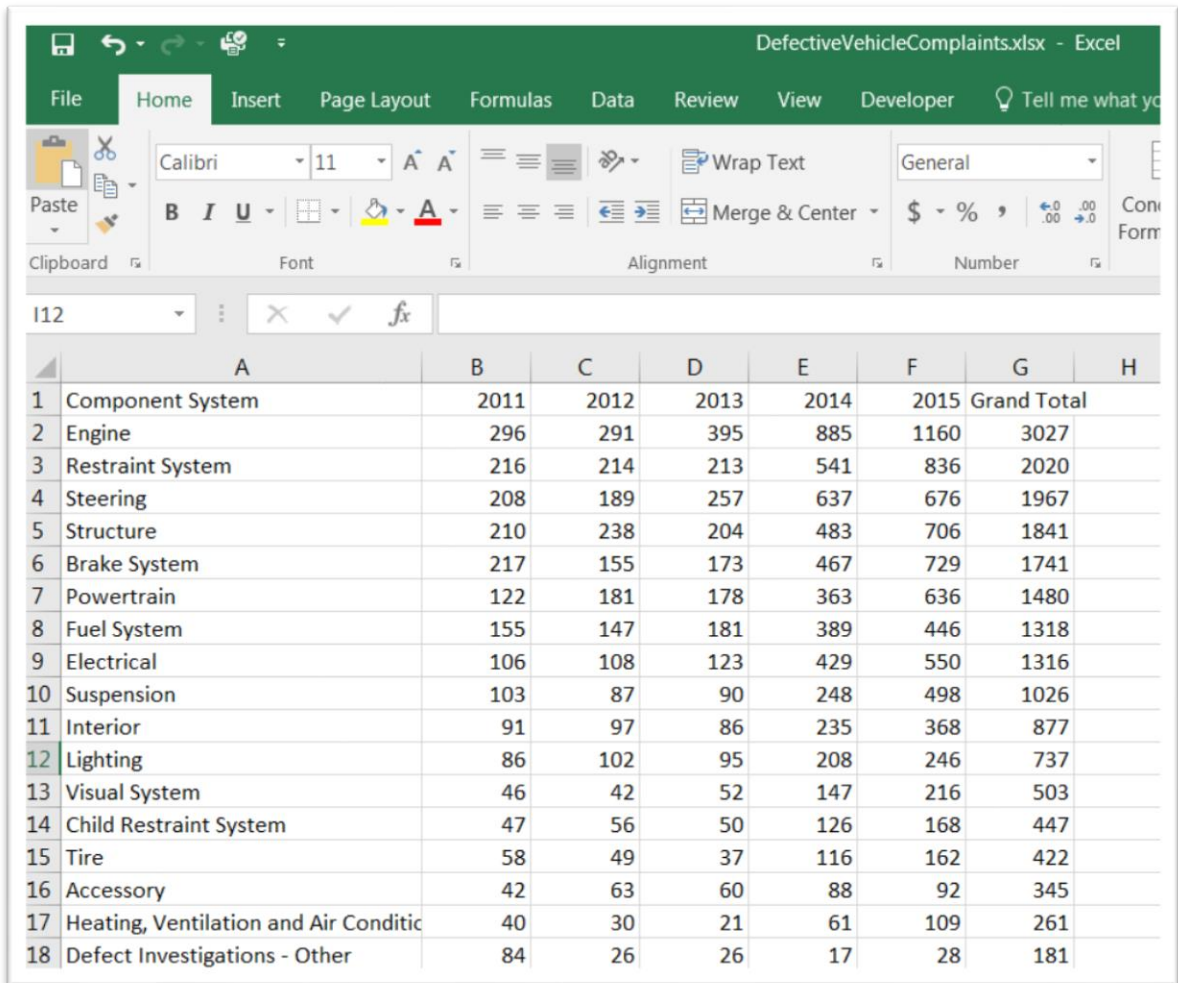
A1

	A	B	C	D	E	F	G	H	I	J
1										
2										
3	Count of II Column Labels									
4	Row Label	2011	2012	2013	2014	2015	Grand Total			
5	Engine	296	291	395	885	1160	3027			
6	Restraint S	216	214	213	541	836	2020			
7	Steering	208	189	257	637	676	1967			
8	Structure	210	238	204	483	706	1841			
9	Brake Syst	217	155	173	467	729	1741			
10	Powertrain	122	181	178	363	636	1480			
11	Fuel System	155	147	181	389	446	1318			
12	Electrical	106	108	123	429	550	1316			
13	Suspension	103	87	90	248	498	1026			
14	Interior	91	97	86	235	368	877			
15	Lighting	86	102	95	208	246	737			
16	Visual Syst	46	42	52	147	216	503			
17	Child Restr	47	56	50	126	168	447			
18	Tire	58	49	37	116	162	422			

DefectiveVehicleComplaints PivotTable Sheet2

Not only does the paste special, get rid of the formula, but it also gets rid of the formatting. Clean up this table by deleting the first three rows, and re-naming column A to something that makes more sense like “Component

System”.



The screenshot shows an Excel spreadsheet titled "DefectiveVehicleComplaints.xlsx". The ribbon is set to "Home". The data table is as follows:

	A	B	C	D	E	F	G	H
1	Component System	2011	2012	2013	2014	2015	Grand Total	
2	Engine	296	291	395	885	1160	3027	
3	Restraint System	216	214	213	541	836	2020	
4	Steering	208	189	257	637	676	1967	
5	Structure	210	238	204	483	706	1841	
6	Brake System	217	155	173	467	729	1741	
7	Powertrain	122	181	178	363	636	1480	
8	Fuel System	155	147	181	389	446	1318	
9	Electrical	106	108	123	429	550	1316	
10	Suspension	103	87	90	248	498	1026	
11	Interior	91	97	86	235	368	877	
12	Lighting	86	102	95	208	246	737	
13	Visual System	46	42	52	147	216	503	
14	Child Restraint System	47	56	50	126	168	447	
15	Tire	58	49	37	116	162	422	
16	Accessory	42	63	60	88	92	345	
17	Heating, Ventilation and Air Conditic	40	30	21	61	109	261	
18	Defect Investigations - Other	84	26	26	17	28	181	

That’s better. But we still have a bit of clean up left. Delete column G, the grand total column, and the grand total row 25 at the bottom. Since we’ll be

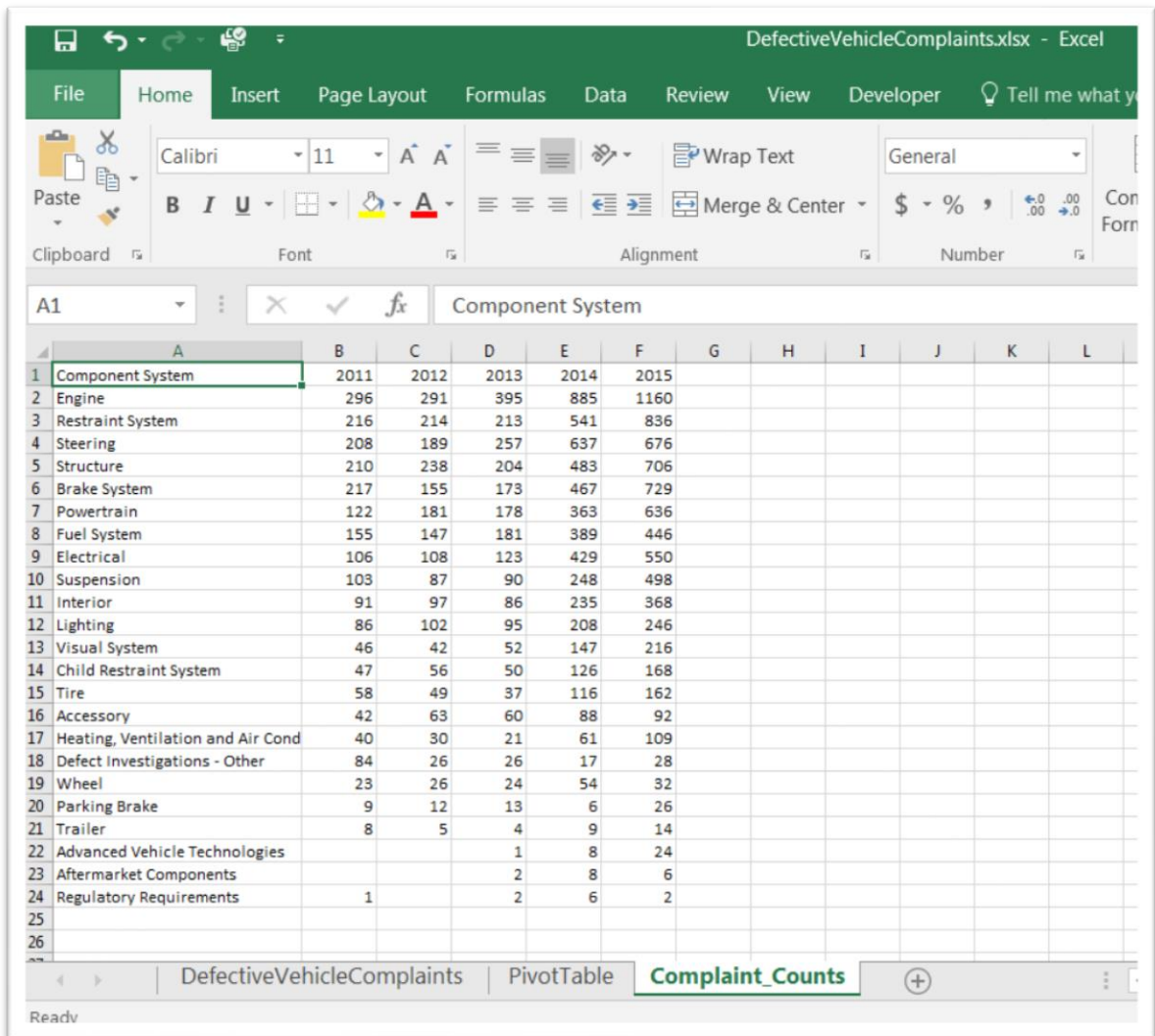
doing our own calculations, we don't need the totals.

The screenshot displays the Microsoft Excel interface with a PivotTable. The ribbon is set to 'Home', and the formula bar shows 'Component System'. The PivotTable is structured as follows:

	A	B	C	D	E	F	G
1	Component System	2011	2012	2013	2014	2015	
2	Engine	296	291	395	885	1160	
3	Restraint System	216	214	213	541	836	
4	Steering	208	189	257	637	676	
5	Structure	210	238	204	483	706	
6	Brake System	217	155	173	467	729	
7	Powertrain	122	181	178	363	636	
8	Fuel System	155	147	181	389	446	
9	Electrical	106	108	123	429	550	
10	Suspension	103	87	90	248	498	
11	Interior	91	97	86	235	368	
12	Lighting	86	102	95	208	246	
13	Visual System	46	42	52	147	216	
14	Child Restraint System	47	56	50	126	168	
15	Tire	58	49	37	116	162	
16	Accessory	42	63	60	88	92	
17	Heating, Ventilation and Air Cond	40	30	21	61	109	
18	Defect Investigations - Other	84	26	26	17	28	
19	Wheel	23	26	24	54	32	
20	Parking Brake	9	12	13	6	26	
21	Trailer	8	5	4	9	14	
22	Advanced Vehicle Technologies			1	8	24	
23	Aftermarket Components			2	8	6	
24	Regulatory Requirements	1		2	6	2	
25							
26							
27							

The bottom of the screenshot shows the worksheet tabs: 'DefectiveVehicleComplaints', 'PivotTable', and 'Sheet2'.

Rename the worksheet “Complaint_Counts”.



The screenshot shows the Microsoft Excel interface for a file named 'DefectiveVehicleComplaints.xlsx'. The 'Home' tab is active, showing the ribbon with options for Font, Alignment, and Number. The active cell is A1, containing the text 'Component System'. The worksheet contains a table with the following data:

	A	B	C	D	E	F	G	H	I	J	K	L
1	Component System	2011	2012	2013	2014	2015						
2	Engine	296	291	395	885	1160						
3	Restraint System	216	214	213	541	836						
4	Steering	208	189	257	637	676						
5	Structure	210	238	204	483	706						
6	Brake System	217	155	173	467	729						
7	Powertrain	122	181	178	363	636						
8	Fuel System	155	147	181	389	446						
9	Electrical	106	108	123	429	550						
10	Suspension	103	87	90	248	498						
11	Interior	91	97	86	235	368						
12	Lighting	86	102	95	208	246						
13	Visual System	46	42	52	147	216						
14	Child Restraint System	47	56	50	126	168						
15	Tire	58	49	37	116	162						
16	Accessory	42	63	60	88	92						
17	Heating, Ventilation and Air Cond	40	30	21	61	109						
18	Defect Investigations - Other	84	26	26	17	28						
19	Wheel	23	26	24	54	32						
20	Parking Brake	9	12	13	6	26						
21	Trailer	8	5	4	9	14						
22	Advanced Vehicle Technologies			1	8	24						
23	Aftermarket Components			2	8	6						
24	Regulatory Requirements	1		2	6	2						
25												
26												

Let's begin using the skills we learned in the “[Calculating Rates and Percentages in a Spreadsheet](#)” tutorial.

The paste-special command is commonly, especially with pivot tables because it allows us to continue our analysis with quick and easy calculations which can then be sorted and filtered, something that is not possible in pivot tables.

Task 3: Transposing the rows and columns of a worksheet.

Sometimes we get tables that are not conducive to easy analysis. For instance, the table may have dozens of columns and only a few rows. In this instance, it would be easier to summarize the information using the

techniques that we've learned so far by turning the columns into rows and rows into columns. To do this, use the "transpose" option. This converts a vertical range of cells to horizontal and vice-versa.

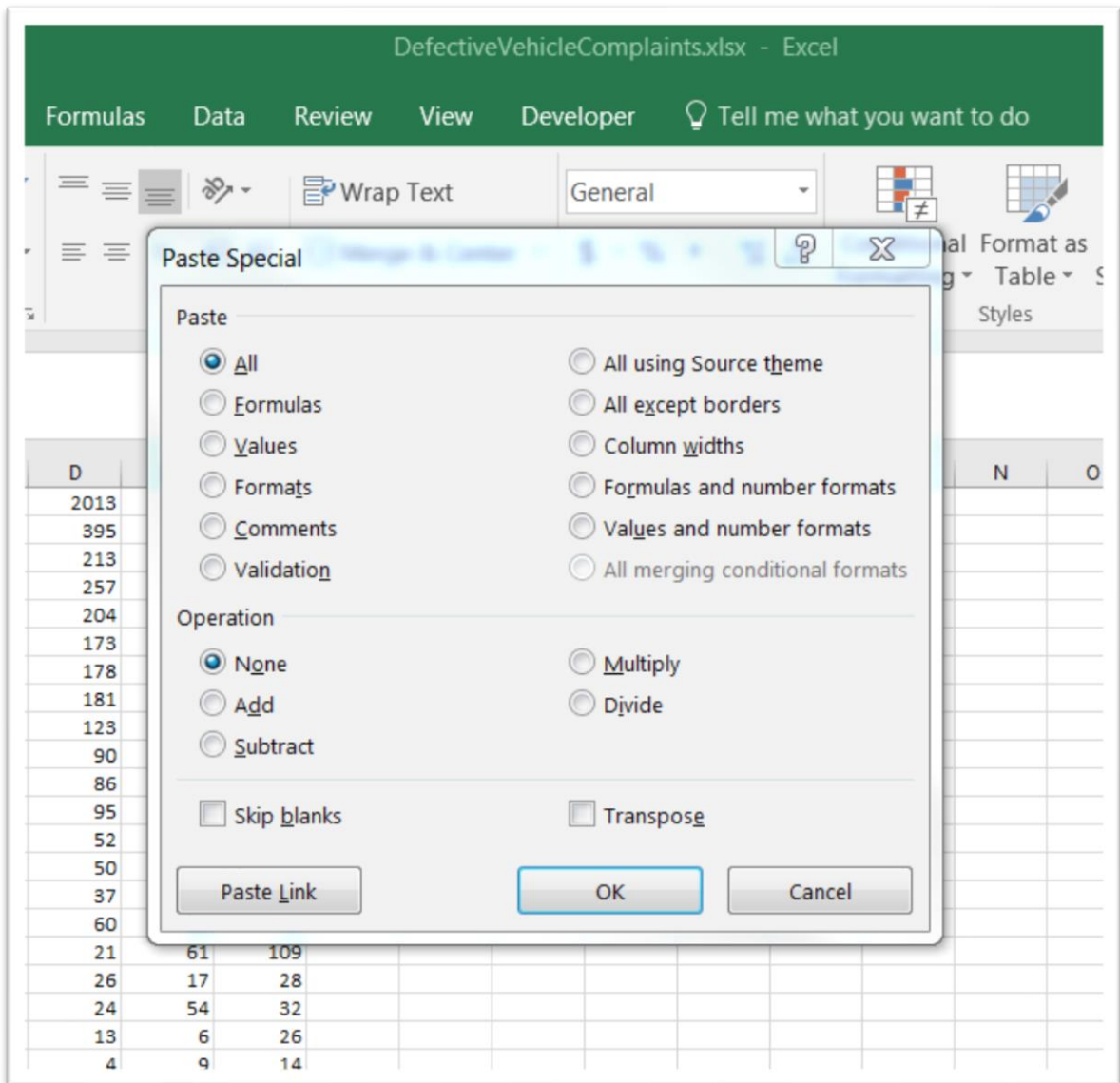
Let's see how this works using the example above. Highlight the table.

The screenshot shows the Microsoft Excel interface with the following data in the PivotTable:

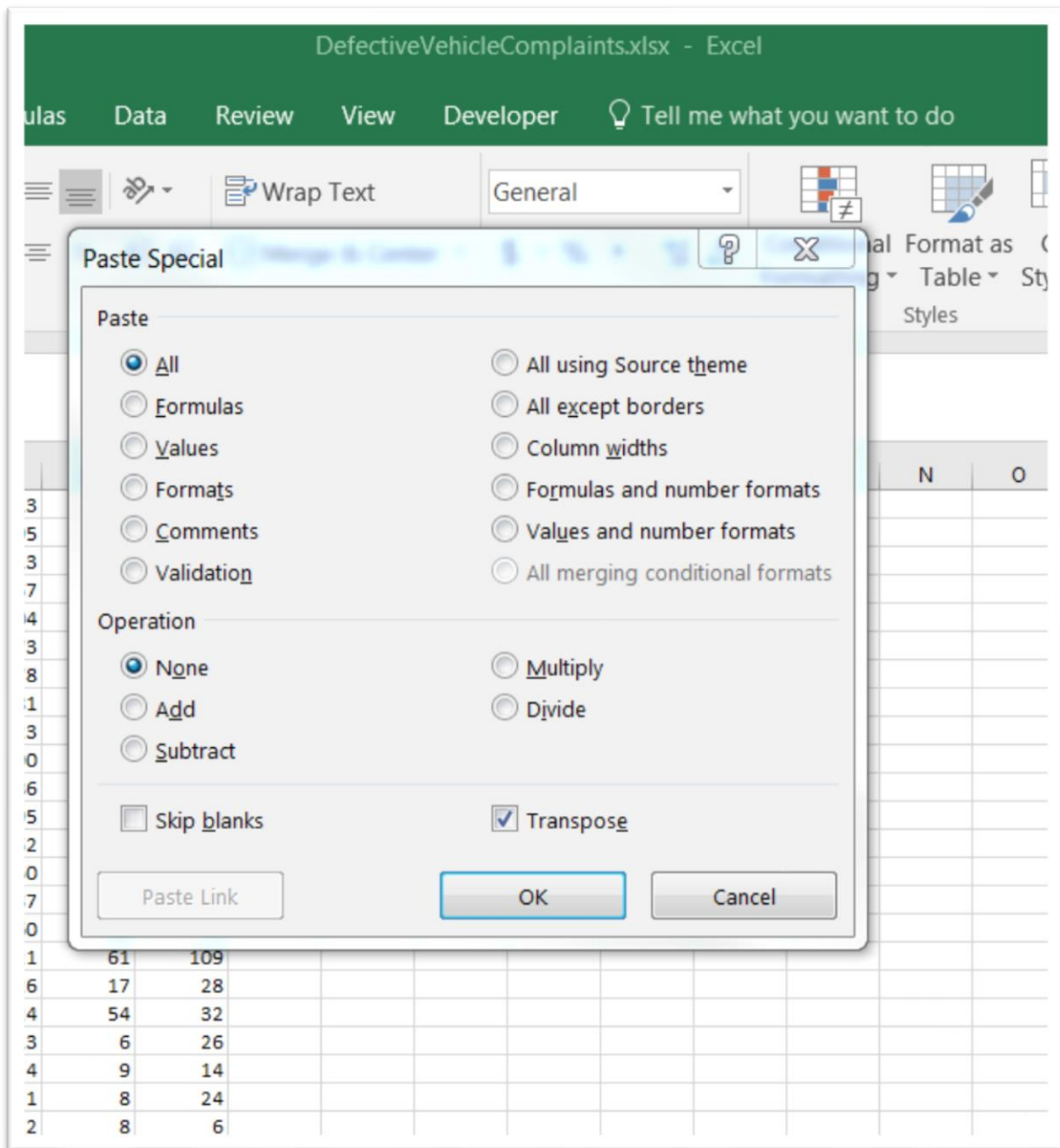
Component System	2011	2012	2013	2014	2015
Component System	2011	2012	2013	2014	2015
Engine	296	291	395	885	1160
Restraint System	216	214	213	541	836
Steering	208	189	257	637	676
Structure	210	238	204	483	706
Brake System	217	155	173	467	729
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Suspension	103	87	90	248	498
Interior	91	97	86	235	368
Lighting	86	102	95	208	246
Visual System	46	42	52	147	216
Child Restraint System	47	56	50	126	168
Tire	58	49	37	116	162
Accessory	42	63	60	88	92
Heating, Ventilation and Air Cond	40	30	21	61	109
Defect Investigations - Other	84	26	26	17	28
Wheel	23	26	24	54	32
Parking Brake	9	12	13	6	26
Trailer	8	5	4	9	14
Advanced Vehicle Technologies			1	8	24
Aftermarket Components			2	8	6
Regulatory Requirements	1		2	6	2

Now copy it.

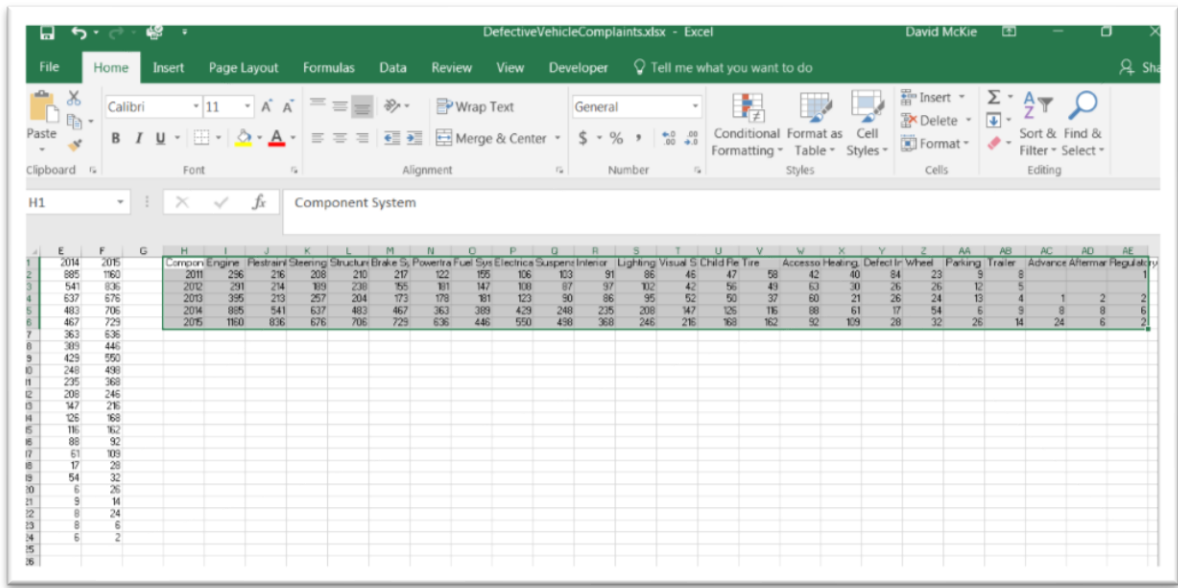
Place your cursor in H1, and obtain your paste special dialogue box.



Select the “Transpose option at the bottom.



Select the OK tab.



The order has been switched.

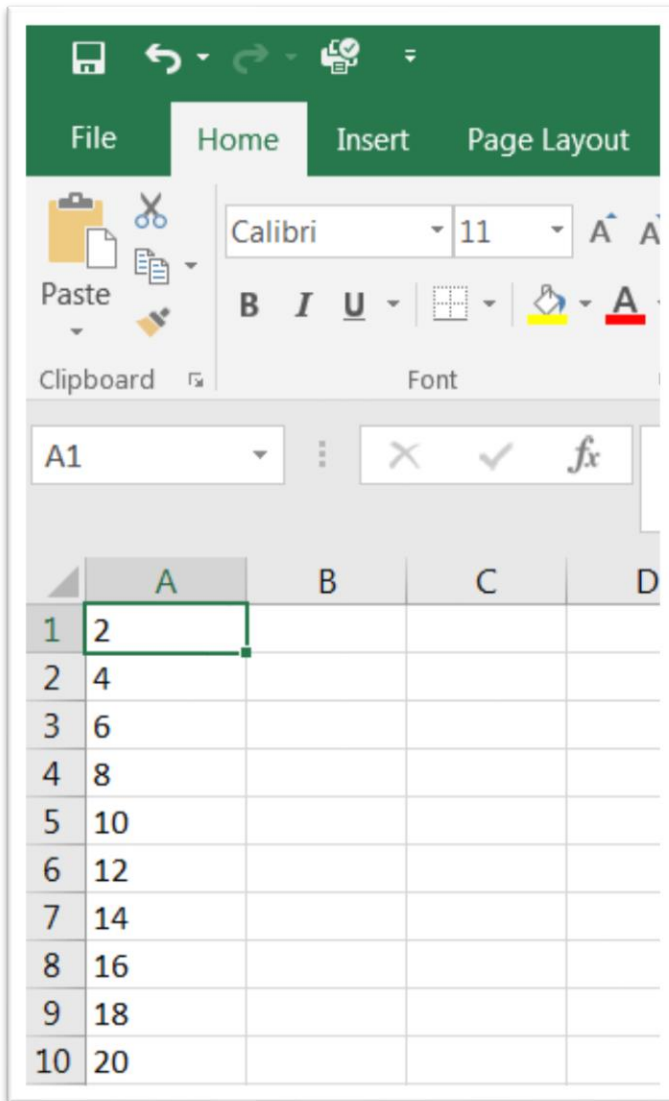
Task 4: Multiplying or dividing a range of values by another value.

As we've seen up until now, paste special is versatile, allowing you to make routine changes to your data. It also comes in handy when your spreadsheet has numbers that are actually text.

This is problematic because a spreadsheet can't perform math on values it reads as text. You can sum the number of fines, count the number of inspections, or calculate the per cent increases.

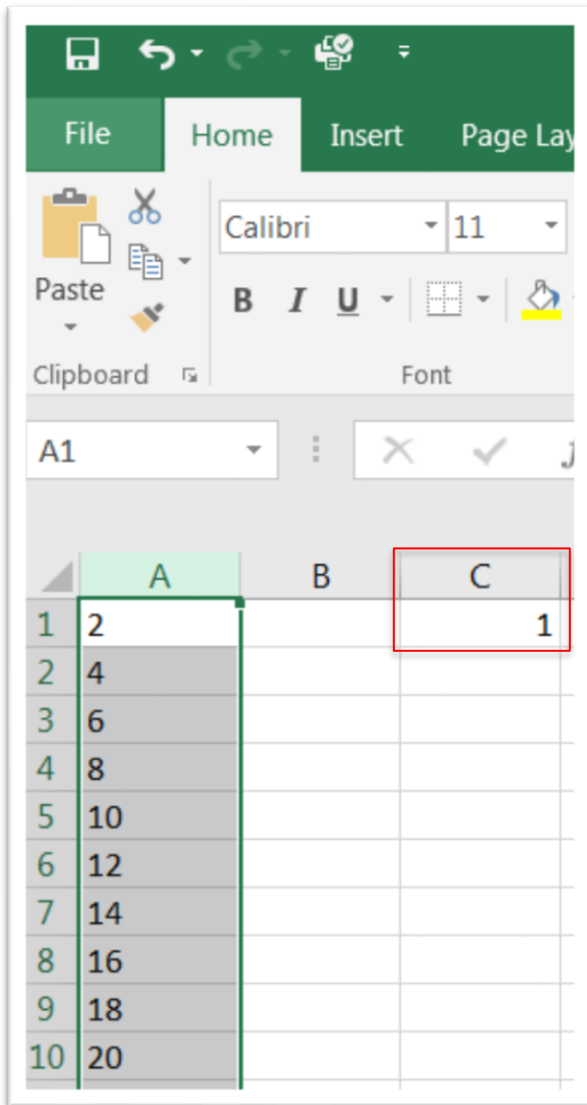
This is another instance where paste special comes in handy. You can often convert the text to numbers by placing the number "1" in an empty cell, and

selecting and copying it. Let's look at an example below.

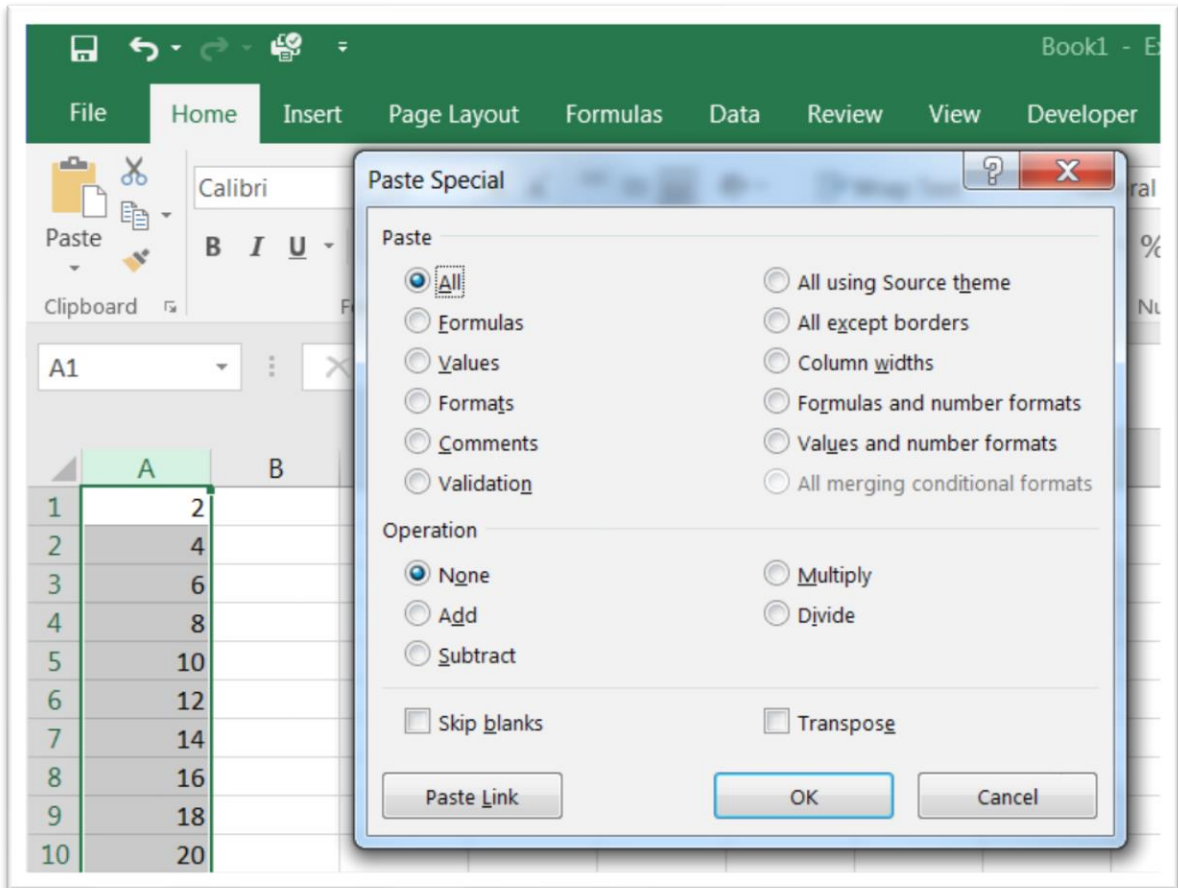


The text is contained in column A. We know this because they're justified to the left. We want to convert them to numbers. To do this, place the number

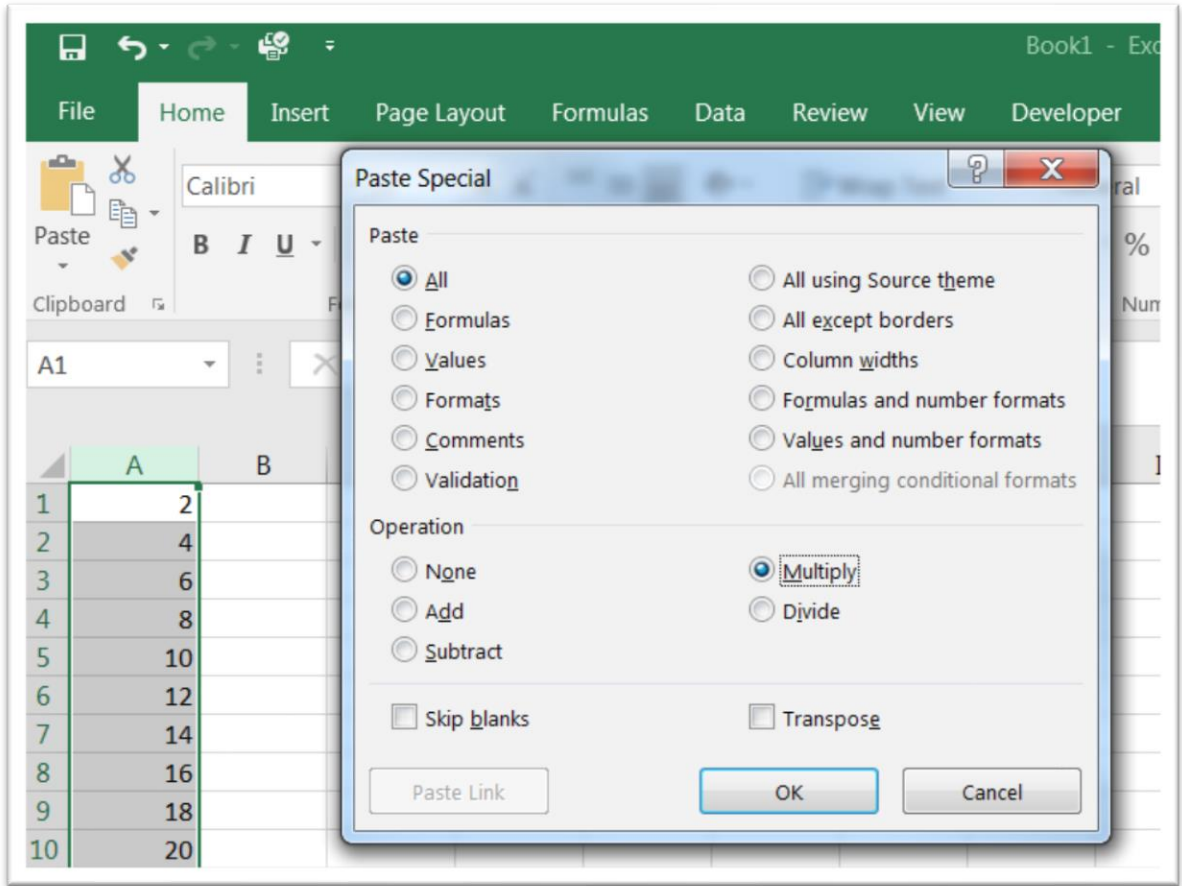
“1” in cell C1. Copy it, and then highlight column A.

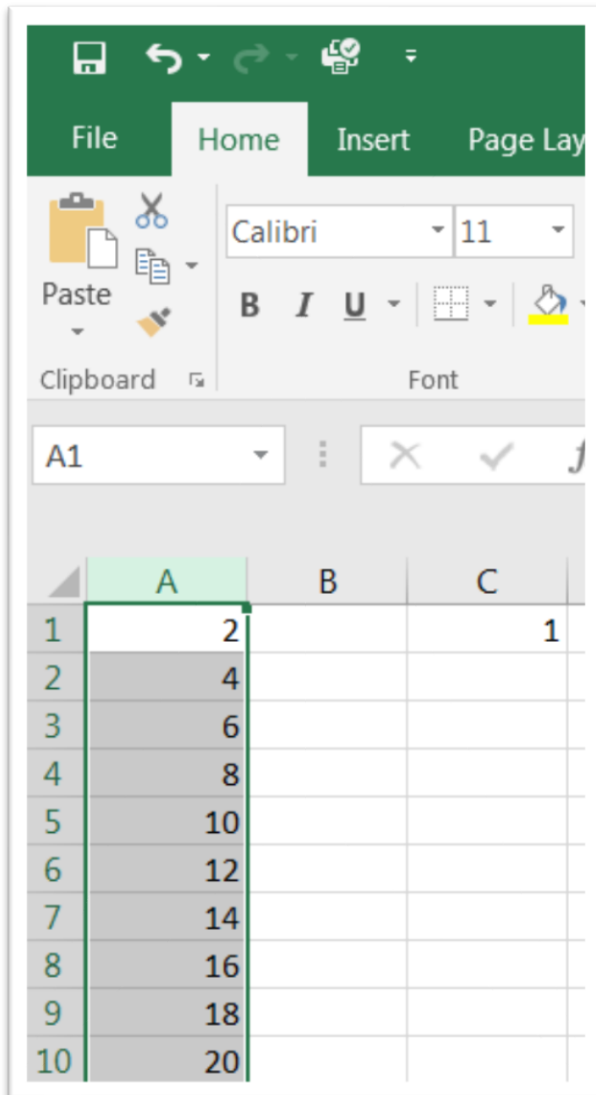


Obtain the paste-special dialogue box using the steps we used in the previous tasks.



Choose the “Multiply” from the paste special dialogue box, and then the OK tab.





Now the numbers are actually numbers, allowing us to continue with our analysis.

Paste special is a very useful and versatile command, which makes it possible to conduct quick calculations that count, sum and calculate per cent changes.