

Testing Ones

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You may or may not have heard of the Test of Ones. It's a method you use when you build a worksheet to test your formulas for accuracy. By placing "ones" in the cells where you data are to reside, your formulas should add up to the sum of the items being tested.

For example, look at the following worksheet (Figure 1). It's only a portion of a household budget (hence the blah, blah, blah at the bottom indicating other categories). There are a variety of different formulas in use here (see Creating Formulas II) including SUM and division.

	д	В		С	D	E			F	G	Н	
1	Test of Ones Budget											
2												
					% of Sub-	% o	ıf			% of Sub-	% of	%
3				January	Total	Tota	al	F	ebruary	Total	Total	Change
4	R	esidential										
5		Mortgage	\$	800.00	62.5%	5 15.	1%	\$	800.00	64.3%	14.8%	0.0%
6		Electricity	\$	200.00	15.6%	5 3.	8%	\$	190.00	15.3%	3.5%	-5.0%
7		Heat	\$	176.00	13.79	5 3.	3%	\$	150.00	12.0%	2.8%	-14.8%
8		Maintenance	\$	35.00	2.79	5 O.	7%	\$	35.00	2.8%	0.6%	0.0%
9		Repair	\$	20.00	1.6%	5 O.	4%	\$	20.00	1.6%	0.4%	0.0%
10		Other	\$	50.00	3.9%	5 O.	9%	\$	50.00	4.0%	0.9%	0.0%
11		Sub-Total	\$	1,281.00	100.0%	5 24.	1%	\$	1,245.00	100.0%	23.0%	-2.8%
12												
13	A	utomobile										
14		Payment	\$	315.00	70.5%	5 5.	9%	\$	315.00	70.5%	5.8%	0.0%
15		Insurance	\$	37.00	8.3%	5 O.	7%	\$	37.00	8.3%	0.7%	0.0%
16		Fuel	\$	45.00	10.1%	5 O.	8%	\$	45.00	10.1%	0.8%	0.0%
17		Maintenance	\$	25.00	5.6%	5 O.	5%	\$	25.00	5.6%	0.5%	0.0%
18		Repair	\$	15.00	3.4%	5 O.	3%	\$	15.00	3.4%	0.3%	0.0%
19		Other	\$	10.00	2.29	5 O.	2%	\$	10.00	2.2%	0.2%	0.0%
20		Sub-Total	\$	447.00	100.0%	5 8.	4%	\$	447.00	100.0%	8.3%	0.0%
21												
22		Blah	\$	1,534.00	100.0%	5 28.	9%	\$	1,600.00	100.0%	29.5%	4.3%
23		Blah	\$	1,105.00	100.0%	5 20.	8%	\$	1,375.00	100.0%	25.4%	24.4%
24		Blah	\$	948.00	100.0%	5 17.	8%	\$	750.00	100.0%	13.8%	-20.9%
25												
26		Total	\$	5,315.00	100.0%	5 100.	0%	\$	5,417.00	100.0%	100.0%	1.9%
Figure 1												

To ensure that we're looking at valid totals and percentages, we have to have a way to check all our formulas. The easiest way to do this is the "Test of Ones."

Here's what the Test of Ones looks like:

	А	В		С	D	E	F		G	Н	
1	Test of Ones Budget										
2											
					% of Sub-	% of			% of Sub-	% of	%
3			January		Total	Total	F	ebruary	Total	Total	Change
4	R	esidential									
5		Mortgage	\$	1.00	16.7%	6.7%	\$	1.00	16.7%	6.7%	0.0%
6		Electricity	\$	1.00	16.7%	6.7%	\$	1.00	16.7%	6.7%	0.0%
7		Heat	\$	1.00	16.7%	6.7%	\$	1.00	16.7%	6.7%	0.0%
8		Maintenance	\$	1.00	16.7%	6.7%	\$	1.00	16.7%	6.7%	0.0%
9		Repair	\$	1.00	16.7%	6.7%	\$	1.00	16.7%	6.7%	0.0%
10		Other	\$	1.00	16.7%	6.7%	\$	1.00	16.7%	6.7%	0.0%
11		Sub-Total	\$	6.00	100.0%	40.0%	\$	6.00	100.0%	40.0%	0.0%
12											
13	3 Automobile										
14		Payment	\$	1.00	16.7%	6.7%	\$	1.00	16.7%	6.7%	0.0%
15		Insurance	\$	1.00	16.7%	6.7%	\$	1.00	16.7%	6.7%	0.0%
16		Fuel	\$	1.00	16.7%	6.7%	\$	1.00	16.7%	6.7%	0.0%
17		Maintenance	\$	1.00	16.7%	6.7%	\$	1.00	16.7%	6.7%	0.0%
18		Repair	\$	1.00	16.7%	6.7%	\$	1.00	16.7%	6.7%	0.0%
19		Other	\$	1.00	16.7%	6.7%	\$	1.00	16.7%	6.7%	0.0%
20		Sub-Total	\$	6.00	100.0%	40.0%	\$	6.00	100.0%	40.0%	0.0%
21											
22		Blah	\$	1.00	100.0%	6.7%	\$	1.00	100.0%	6.7%	0.0%
23		Blah	\$	1.00	100.0%	6.7%	\$	1.00	100.0%	6.7%	0.0%
24		Blah	\$	1.00	100.0%	6.7%	\$	1.00	100.0%	6.7%	0.0%
25											
26		Total	\$	15.00	100.0%	100.0%	\$	15.00	100.0%	100.0%	0.0%
	Figure 2										

We simply place ones in all the cells where our actual, real numbers are to go. Add up the number of items (for Residential, there are six items so the Sub-Total has to equal six) and check it to the total formula.

For percentages, you'll probably need to get out a calculator; but for the Percentage Change formulas, they should all equal zero.

And that's all there is to it.

If everything checks out, replace the ones with your real figures and you're all set.

Summary...

When constructing a worksheet from scratch, you basically want to focus and work on the first set of formulas only. Create your line items (those running vertically on the left) and your column titles. Create your formulas (SUM, percentages, etc.) for one month (in the case of constructing a budget).

Create one formula (like the % of Sub-Total formula) and copy it down (by the way, that's an absolute formula). Remember, don't reinvent the wheel when creating formulas; more problems are apt to arise when you do.

If you focus your attention on just a sub-section of your worksheet (for example, the month of January) with all its formulas, you can apply the Test of Ones to this column. You won't have to do the Test of Ones to the entire worksheet <u>after</u> it's built!

If all your formulas for this single column are correct, delete all the ones and copy everything repeatedly over to the right to finish off your worksheet.

Here's an example:

I create the first column of data, create my SUM formulas (column C), then create my percentage formulas. I've already done the Test of Ones, and it looked fine, so I've deleted the ones (hence the #DIV/0! Entries above). Next I've highlighted everything I want to copy.

I then move the cursor over to cell F5 and I paste it there (see next page).

	А	В	C	D	E	F	G	H		
1		Test of Ones Budget								
2										
				% of Sub-	% of					
3			January	Total	Total					
4	R	esidential								
5		Mortgage		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
6		Electricity		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
7		Heat		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
8		Maintenance		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
9		Repair		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
10		Other		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
11		Sub-Total	\$ -	#DIV/0!	#DIV/0!	\$ -	#DIV/0!	#DIV/0!		
12										
13	А	utomobile								
14		Payment		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
15		Insurance		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
16		Fuel		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
17		Maintenance		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
18		Repair		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
19		Other		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
20		Sub-Total	\$ -	#DIV/0!	#DIV/0!	\$ -	#DIV/0!	#DIV/0!		
21										
22		Blah		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
23		Blah		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
24		Blah		#DIV/0!	#DIV/0!		#DIV/0!	#DIV/0!		
25										
26		Total	\$ -	#DIV/0!	#DIV/0!	\$	#DIV/0!	#DIV/0!		
27										

The only thing that's missing is the Percentage Change column. I'd actually have to construct that, if I wanted that information, before finishing off the worksheet. If I didn't want it, I can simply keep moving the cursor to the right and pasting what I have copied until I have a full year. The only thing left on the worksheet would be to create my line item totals to the far right; a simple task at this point.

By constructing your worksheets in this manner, you limit the possibility of creating a formula (making a typo?) that isn't correct.

Test your first set of formulas, then simply copy them over. Why reinvent the wheel when you can cheat!

Good luck.

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