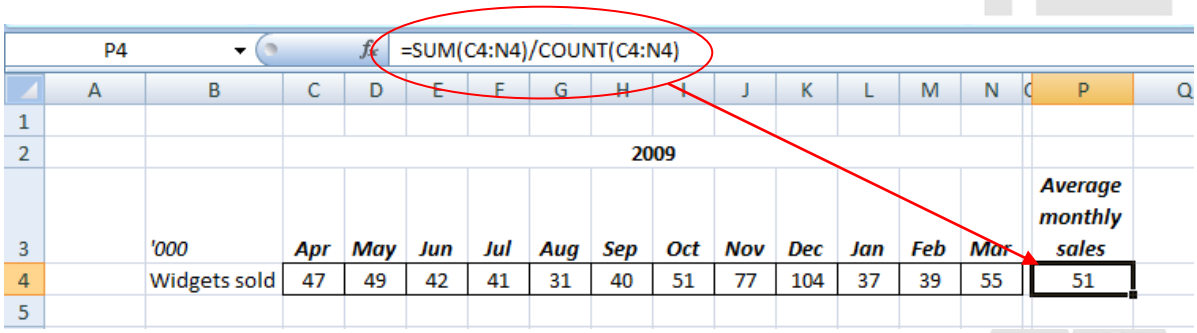
Weighted Averages

Averaging is a powerful way of summarising data. In business it is often used to smooth out short-term volatility that masks trends, or seasonal variations that are not relevant.

Often a 'straightforward' average is what's needed – and this can be calculated in Excel using the AVERAGE function, or SUMing the quantities and dividing by their COUNT:



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P
1															
2								2009							
3		'000	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Average monthly sales
4		Widgets sold	47	49	42	41	31	40	51	77	104	37	39	55	51
5															

Note: To get to the same answer as in the screenshot using AVERAGE, the formula in cell P4 would be =AVERAGE(C4:N4)

Sometimes though it is necessary to use a weighted average, meaning some of the values included in the average *count more* towards it than others. An example of this might be where we want to find the average price of the Widgets sold in the above sales data:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	P
1															
2								2009							
3			Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Average monthly sales
4		Widgets sold (k)	47	49	42	41	31	40	51	77	104	37	39	55	51
5		Widget price (£)	1.2	1.2	1.2	1.5	1.5	1.5	1.5	2.1	2.1	2.1	2.1	2.1	
6															

Just averaging the 'Widget prices in row 5 will give a misleading answer – because they sold in different numbers at the different price points in each month. To calculate a weighted average price we need to apply this generic formula:

=SUMPRODUCT(***<range of values>***,***<range of weights>***)/SUM(***<range of weights>***)

In our example, the average price is <u>price *weighted* by the number sold</u> – it is given by

=SUMPRODUCT(**C5:N5**,**C4:N4**)/SUM(**C4:N4**) giving an answer of £1.74.

Excel with Business

This short lesson is a snippet from Excel with Business's online Excel-training course – see www.excelwithbusiness.com/training.aspx for more details.