

Conditional calculations

Often the formula to be used depends on the value in some cell. To look at this the calculation of income tax withholding will be considered. For this example, the amount to be withheld is 10% of the earnings above a starting value where the starting value depends on marital status and is adjusted based on the number of dependents. First look at how this starting value is calculated in I1.

I1		=IF(G1="M", 333, 110)+H1*137.5									
	A	B	C	D	E	F	G	H	I	J	
1	Rate:	7.80	Name:	Dilbert			S	0	110		
2	Total		387.75	3020.55	0.00	3020.55	171.33	187.27	43.80	2618.15	
3											
4	Period ending	Month posted	Hours	Earnings	Other	015221 Total	012202 Withhold	012201 FICA	012218 Medicare	Amount	
17											
18	Period ending	Month posted	Hours	Earnings	Other	015221 Total	012202 Withhold	012201 FICA	012218 Medicare	Amount	
19	4-Jan	1	13	97.50		97.50	0.00	6.05	1.41	90.04	
20	15-Jan	1	36.75	286.65		286.65	17.67	17.77	4.16	247.05	
21	1-Feb	2	32	249.60		249.60	13.96	15.47	3.62	216.55	
22	19-Feb	2	39.5	308.10		308.10	19.81	19.10	4.47	264.72	

Cell G1 holds the marital status and H1 contains the number of dependants. The starting value for withholding in cell I1 is the allowance for dependants ($H1 * 137.5$) plus \$333 if marital status is M or \$110 otherwise (single taxpayer). The IF function chooses between these values based on the character entered in G1.

The actual withholding calculation is illustrated by the calculation in G20 shown here:

G20		=ROUND(IF(F20<=\$I\$1, 0, 0.1*(F20-\$I\$1),2)									
	A	B	C	D	E	F	G	H	I	J	
1	Rate:	7.80	Name:	Dilbert			S	0	110		
2	Total		387.75	3020.55	0.00	3020.55	171.33	187.27	43.80	2618.15	
3											
4	Period ending	Month posted	Hours	Earnings	Other	015221 Total	012202 Withhold	012201 FICA	012218 Medicare	Amount	
17											
18	Period ending	Month posted	Hours	Earnings	Other	015221 Total	012202 Withhold	012201 FICA	012218 Medicare	Amount	
19	4-Jan	1	13	97.50		97.50	0.00	6.05	1.41	90.04	
20	15-Jan	1	36.75	286.65		286.65	17.67	17.77	4.16	247.05	
21	1-Feb	2	32	249.60		249.60	13.96	15.47	3.62	216.55	

Here the IF function is used to return a zero if the income is below the start of withholding in I1 and to return 10% of the income above that level otherwise. Finally, the withholding is rounded to the nearest penny.

In one example the test has been on an alphabetic value and in the other the test has been on a numeric value. Similarly, the value returned may depend on the test. In this particular sheet the rows are added sequentially throughout the year. It is convenient to copy formulas down the columns to allow for as many rows as are likely to be needed without having to copy formulas one row at a time. However, it is also annoying to have all the unused rows filled with zeros. By testing on an input value (column C in this sheet) the value returned can be a space character if the entry is zero or the calculated value if a valid entry is found. The result is a row with formulas which appear to activate when the data entry is made on the row.