

## Using the COUNTIF Function

Here is a question put to us last month:

***“How can I count the number of reviews due each month?”***

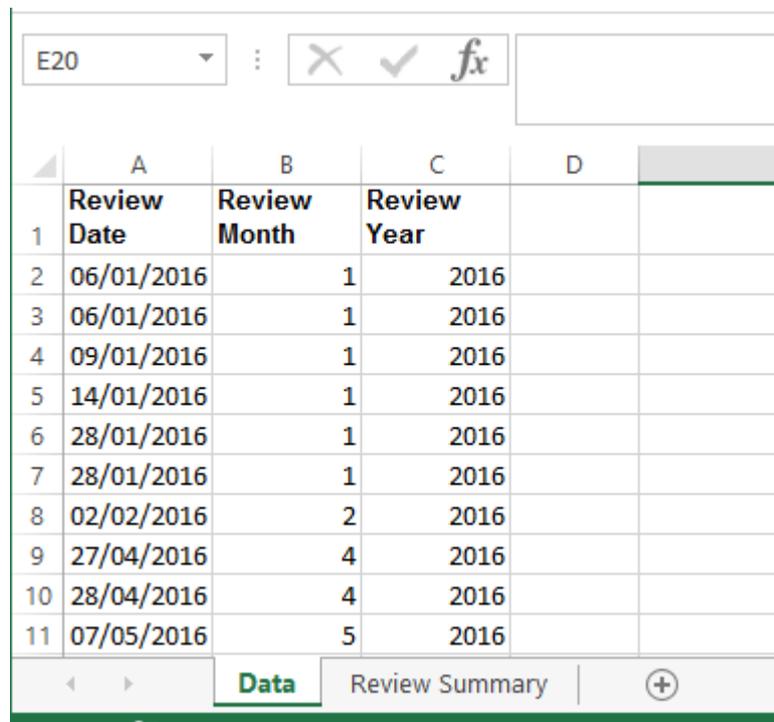
The question related to a workbook containing a column of review dates.

To tackle this requirement and extend it a little further I have created a workbook containing a Data worksheet with a column of review dates and a Review Summary worksheet that displays the monthly counts of reviews due. I have used the COUNTIFS function to produce the desired counts.

The workbook for these examples can be downloaded via this link:

<https://www.ptr.co.uk/excel/countifs-function.xlsx>.

The Data Worksheet:



The screenshot shows an Excel spreadsheet with a data table. The table has three columns: Review Date, Review Month, and Review Year. The data rows are as follows:

	A	B	C	D
1	Review Date	Review Month	Review Year	
2	06/01/2016	1	2016	
3	06/01/2016	1	2016	
4	09/01/2016	1	2016	
5	14/01/2016	1	2016	
6	28/01/2016	1	2016	
7	28/01/2016	1	2016	
8	02/02/2016	2	2016	
9	27/04/2016	4	2016	
10	28/04/2016	4	2016	
11	07/05/2016	5	2016	

The spreadsheet also shows a formula bar at the top with 'E20' and a worksheet tab at the bottom with 'Data' and 'Review Summary'.

I have created two columns to represent the month and year of the review date. (These could be hidden if you don't want to see them.)

The Review Summary Worksheet:

	A	B	C	D	E	F	G
1	Monthly Review Summary	Reviews Due	Month	Year	Number Due Using Derived Month and Year	Number Due Using Date Ranges	
2		Jan-16	1	2016	6	6	
3		Feb-16	2	2016	1	1	
4		Mar-16	3	2016	0	0	
5		Apr-16	4	2016	2	2	
6		May-16	5	2016	1	1	
7		Jun-16	6	2016	0	0	
8		Jul-16	7	2016	11	11	
9		Aug-16	8	2016	0	0	
10		Sep-16	9	2016	18	18	
11		Oct-16	10	2016	15	15	
12		Nov-16	11	2016	8	8	
13		Dec-16	12	2016	2	2	
14		Jan-17	1	2017	1	1	
15							

The first thing I have done is created a table of month and year combinations for the months to be summarised.

- Column B contains an actual date with cell formatted to show just month and year.
- Column C uses the MONTH function to extract the month number from Column B dates.

=MONTH (B2)

- Column D uses the YEAR function to extract the year from Column B dates.

=YEAR (B2)

Column F contains a formula that uses the COUNTIFS function to count cells based on two conditions:

- The month of the review date on the **Data worksheet** matches the month in **Review Summary worksheet** column C cell.
- The year of the review date on the **Data worksheet** matches the year in **Review Summary worksheet** column C cell.

The formula is as follows:

=COUNTIFS (Data!\$A\$2:\$A\$66, ">=01/01/2016", Data!\$A\$2:\$A\$66, "<=31/01/2016")

Column E returns the same results as column F, but references the month and year cells instead of the full date ranges.

The formula is as follows:

```
=COUNTIFS (Data!$B$2:$B$66,C2,Data!$C$2:$C$66,D2)
```

## The COUNTIFS Function

The COUNTIFS function syntax is as follows:

```
COUNTIFS(criteria_range1, criteria1, [criteria_range2, criteria2]...)
```

The function takes pairs of arguments. Each pair identifies a range of data and a condition.

- The **Criteria\_Range** identifies the cells to inspect.
- The **Criteria** identifies the condition we wish to match.
- Any matches in the criteria range will be included in the count.

Where more than one pair is provided all conditions must be matched for a cell value to be counted.

COUNTIFS counts the number of times all specified conditions are met.

### So to break down the formula in cell F2:

```
=COUNTIFS (Data!$A$2:$A$66, ">=01/01/2016",Data!$A$2:$A$66, "<=31/01/2016")
```

Criteria Range 1: Data!\$A\$2:\$A\$66

Criteria 1: , ">=01/01/2016"

Criteria Range 2: Data!\$A\$2:\$A\$66

Criteria 2: , "<=31/01/2016"

In this example the range of cells to check is the same in both pairs (the actual review dates)

- The first pair tests for all dates in the cell range \$A\$2:\$A\$66 on the Data worksheet being on or after 1<sup>st</sup> January 2016.
- The second pair tests for all dates in the cell range \$A\$2:\$A\$66 on the Data worksheet being on or before 31<sup>st</sup> January 2016.

In other words, we will count the number of times a cell from the range Data!\$A\$2:\$A\$66 is in January 2016.

**To break down the formula in cell E2:**

```
=COUNTIFS (Data!$B$2:$B$66, C2, Data!$C$2:$C$66, D2)
```

Criteria Range 1: Data!\$B\$2:\$B\$66

Criteria 1: C2

Criteria Range 2: Data!\$C\$2:\$C\$66

Criteria 2: D2

In this example the range of cells to check is different in each pair. Column B on worksheet Data contains the month number derived from the review dates. Column C on worksheet Data contains the year derived from the review dates.

- The first pair tests for all month numbers in the cell range \$B\$2:\$B\$66 on the Data worksheet being **equal to** cell C2 (1) on the Review Summary worksheet (the summary month).
- The second pair tests for all years in the cell range \$C\$2:\$C\$66 on the Data worksheet being **equal to** cell D2 (2016) on the Review Summary worksheet (the summary year).

In other words, we will count the number of times a cell from Data!\$B\$2:\$B\$66 matches 1 AND the corresponding cell from Data!\$C\$2:\$C\$66 matches 2016.

This formula could also have been written like this:

```
=COUNTIFS (Data!$B$2:$B$66, "="&C2, Data!$C$2:$C$66, D2)
```

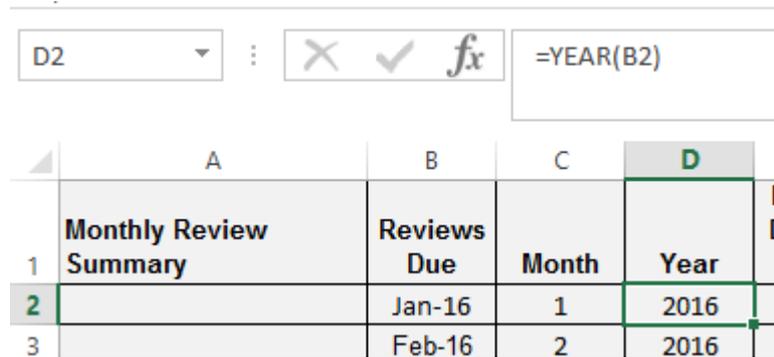
**MONTH Function**

The MONTH Function is used to extract the month number from a date value in a cell.

	A	B	C	D
1	Monthly Review Summary	Reviews Due	Month	Year
2		Jan-16	1	2016
3		Feb-16	2	2016

## The YEAR Function

The YEAR Function is used to extract the four digit year from a date value in a cell.



D2 :    =YEAR(B2)

	A	B	C	D
1	Monthly Review Summary	Reviews Due	Month	Year
2		Jan-16	1	2016
3		Feb-16	2	2016

*If you are itching to learn more why not book on to our Excel training courses? This link will take you to the course outlines:*

<http://ptr.co.uk/microsoft-office-courses>