

Excel DATEDIF - calculate difference between two dates in days, weeks, months or years

Calculate age in Excel on the fly

And get a custom-tailored formula

The screenshot shows a Microsoft Excel spreadsheet and a 'Date & Time Formula Wizard' dialog box. The spreadsheet has columns A, B, and C. Row 1 contains headers: Position, Birth date, and Age. Rows 2 through 7 contain data: CEO (6/26/89, 29 years), Tester (8/18/85, 33 years), Manager (3/11/87, 32 years), Unicorn (7/29/87), Sales (2/10/86), and Exorcist (2/17/80). The 'Manager' cell (C4) is highlighted with a red border. The dialog box is open over the spreadsheet. It has tabs for Add, Subtract, Difference, and Age (which is underlined). The 'Age' tab is active. Under 'Arguments', 'Date of birth:' is set to 'B4'. 'Age at the date of:' has 'Today's date' selected. 'Age:' is set to 'Y'. There are checkboxes for 'Add text labels' (checked) and 'Do not show zero units' (unchecked). Buttons at the bottom include 'Ablebits', 'Insert Formula' (highlighted in blue), and 'Cancel'.

Excel DATEDIF function - calculating date difference

As its name suggests, the DATEDIF function is purposed for calculating the difference between two dates.

DATEDIF is one of very few undocumented functions in Excel, and because it is "hidden" you won't find it on the *Formula* tab, nor will you get any hint on which arguments to enter when you start typing the function's name in the formula bar. That is why it's important to know the complete syntax of Excel DATEDIF to be able to use it in your formulas.

Excel DATEDIF function - syntax

The syntax of the Excel DATEDIF function is as follows:

```
DATEDIF(start_date, end_date, unit)
```

All three arguments are required:

Start_date - the initial date of the period you want to calculate.

End_date - the ending date of the period.

To put it differently, start_date and end_date are two dates to calculate the difference between. In your DATEDIF formulas, you can input the dates in various ways, such as:

- Cell references. For example, the following formula counts the number of days between the dates in cells A1 and B1:

```
=DATEDIF(A1, B1, "d")
```

- Text strings. Excel understands dates in many formats, for example "20-May-2015", "5/20/2015", "2015/5/20", etc. The following formula calculates the number of months between the specified dates:

```
=DATEDIF("5/10/2015", "7/20/2015", "m")
```

- Serial numbers. Since Microsoft Excel stores each date as a serial number beginning with January 1, 1900, you can put numbers corresponding to the dates directly in the formula. Although fully supported, this method is not reliable because date numbering varies on different computer systems. In the 1900 date system, the following formula is another way to calculate months between two dates from the previous example (10-May-2015 and 20-Jul-2015):

```
=DATEDIF(42134, 42205, "m")
```

- Results of other functions. For instance, the following formula counts how many days there are between today's date and 20 May, 2015.

```
=DATEDIF(TODAY(), "5/20/2015", "d")
```

Note. In your formulas, the end date must always be greater than the start date, otherwise the Excel DATEDIF function returns the #NUM! error.

Unit - the time unit to use when calculating the difference between two dates. By supplying different units, you can get the DATEDIF function to return the date difference in days, months or years. Overall, 6 units are available, which are described in the following table.

Unit	Meaning	Explanation
Y	Years	Number of complete years between the start and end dates.
M	Months	Number of complete months between the dates.
D	Days	Number of days between the start date and end date.
MD	Days excluding years and months	The date difference in days, ignoring months and years.
YD	Days excluding years	The date difference in days, ignoring years.

YM	Months excluding days and years	The date difference in months, ignoring days and years.
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Hopefully, the above information has been helpful to understand the basics. And now, let's see how you can use the Excel DATEDIF function to compare dates in your worksheets and return the difference.

How to get the number of days between two dates in Excel

If you observed DATEDIF's arguments carefully, you've noticed that there exist 3 different units for counting days between the dates. Which one to use depends on exactly what your needs are.

Example 1. Excel DATEDIF formula to calculate date difference in days

Supposing you have the start date in cell A2 and the end date in cell B2 and you want Excel to return the date difference in days. A simple DATEDIF formula works just ne:

```
=DATEDIF(A2, B2, "d")
```

Provided that a value in the start_date argument is less than in end_date. In case the start date is greater than the end date, the Excel DATEDIF function returns the #NUM error, as in row 5:

	A	B	C
1	Start Date	End Date	Date Dif (in days)
2	1-May-15	20-May-15	19
3	18-Mar-15	17-May-15	60
4	17-Jan-15	15-Jun-15	149
5	15-May-15	10-May-15	#NUM!
6	6-May-15	29-May-15	23
7	20-May-15	3-Jul-15	44

If you are looking for a formula that can return the date difference in days as either a positive or negative number, simply subtract one date directly from the other:

```
=B2-A2
```

Please see [How to subtract dates in Excel](#) for full details and more formula examples.

Example 2. Count days in Excel ignoring years

Supposing you have two lists of dates that belong to different years and you wish to calculate the number of days between the dates as if they were of the same year. To do this, use a DATEDIF formula with "YD" unit: `=DATEDIF(A2, B2, "yd")`

	A	B	C
1	Start Date	End Date	Date Dif (ignore years)
2	25-May-14	4-Jun-15	10
3	3-May-14	3-May-15	0
4	14-Jul-14	17-Jun-15	338
5	30-May-14	18-Mar-15	292
6	11-Jun-14	7-Jul-15	26
7	8-May-14	9-May-15	1

If you want the Excel DATEDIF function to ignore not only years but also months, then use the "md" unit. In this case, your formula will calculate days between two dates as if they were of the same month and the same year:

```
=DATEDIF(A2, B2, "md")
```

The screenshot below demonstrates the results, and comparing it with the screenshot above can help understand the difference better.

	A	B	C
1	Start Date	End Date	Date Dif (ignore years & months)
2	25-May-14	4-Jun-15	10
3	3-May-14	3-May-15	0
4	14-Jul-14	17-Jun-15	3
5	30-May-14	18-Mar-15	16
6	11-Jun-14	7-Jul-15	26
7	8-May-14	9-May-15	1

💡 Tip. To get the number of working days between two dates, use the [NETWORKDAYS](#) or [NETWORKDAYS.INTL](#) function.

How to calculate date difference in weeks

As you probably noticed, the Excel DATEDIF function does not have a special unit to calculate date difference in weeks. However, there is an easy workaround.

To find out how many weeks there are between two dates, you can use the DATEDIF function with "D" unit to return the difference in days, and then divide the result by 7.

	A	B	C
1	Start Date	End Date	Date Dif (in weeks)
2	25-May-14	4-Jun-15	53.57
3	3-May-14	4-May-14	0.14
4	14-Jul-14	17-Jun-15	48.29
5	30-May-14	18-Jun-14	2.71
6	11-Jun-14	7-Jul-15	55.86
7	8-May-14	9-May-15	52.29

To get the number of full weeks between the dates, wrap your DATEDIF formula in the ROUNDDOWN function, which always rounds the number towards zero:

```
=ROUNDDOWN( (DATEDIF(A2, B2, "d") / 7), 0)
```

Where A2 is the start date and B2 is the end date of the period you are calculating.

	A	B	C
1	Start Date	End Date	Date Dif (in weeks)
2	25-May-14	4-Jun-15	53
3	3-May-14	4-May-14	0
4	14-Jul-14	17-Jun-15	48
5	30-May-14	18-Jun-14	2
6	11-Jun-14	7-Jul-15	55
7	8-May-14	9-May-15	52

How to calculate the number of months between two dates in Excel

Similarly to counting days, the Excel DATEDIF function can compute the number of months between two dates that you specify. Depending on the unit you supply, the formula will produce different results.

Example 1. Calculate complete months between two dates (DATEDIF)

To count the number of whole months between the dates, you use the DATEDIF function with "M" unit. For example, the following formula compares the dates in A2 (start date) and B2 (end date) and returns the difference in months:

```
=DATEDIF(A2, B2, "m")
```

 **Note.** For the DATEDIF formula to calculate months correctly, the end date should always be greater than the start date; otherwise the formula returns the #NUM error.

	A	B	C
1	Start Date	End Date	Date Dif (in months)
2	4-May-15	4-Jun-15	1
3	3-May-14	3-May-15	12
4	14-Jul-14	17-Feb-15	7
5	10-May-14	18-May-14	0
6	11-Jun-14	7-Jul-13	#NUM!
7	8-May-14	9-Jan-15	8

To avoid such errors, you may force Excel to always perceive an older date as the start date, and a more recent date as the end date. To do this, add a simple logical test:

```
=IF(B2>A2, DATEDIF(A2,B2,"m"), DATEDIF(B2,A2,"m"))
```

Example 2. Get the number of months between two dates ignoring years (DATEDIF)

To count the number of months between the dates as if they were of the same year, type "YM" in the unit argument:

```
=DATEDIF(A2, B2, "ym")
```

	A	B	C
1	Start Date	End Date	Date Dif (in months)
2	4-May-15	4-Jun-15	1
3	3-May-14	3-May-15	0
4	14-Jul-14	17-Feb-15	7
5	10-May-14	18-May-14	0
6	11-Jun-14	7-Jul-13	#NUM!
7	8-May-14	9-Jan-15	8

As you see, this formula also returns an error in row 6 where end date is less than the start date. If your data set may contain such dates, you will find the solution in the next examples.

Example 3. Calculating months between two dates (MONTH function)

An alternative way to calculate the number of months between two dates in Excel is using the MONTH function, or more precisely a combination of MONTH and YEAR functions:

```
=(YEAR(B2) - YEAR(A2)) *12 + MONTH(B2) - MONTH(A2)
```

Of course, this formula is not so transparent as DATEDIF and it does take time to wrap your head around the logic. But unlike the DATEDIF function, it can compare any two dates and return the difference in months as either a positive or negative value:

	C2	=DATEDIF(A2, B2, "m")	=YEAR(B2)-YEAR(A2)*12+MONTH(B2)-MONTH(A2)		
	A	B	C	D	E
1	Start Date	End Date	DATEDIF	YEAR/MONTH	
2	4-May-15	4-Jun-15	1	1	
3	3-May-14	3-May-15	12	12	
4	3-Apr-15	17-Oct-15	6	6	
5	10-May-14	18-May-14	0	0	
6	11-Jun-14	7-Jul-13	#NUM!		-11
7	17-Feb-15	1-Mar-15	0		1

Notice that the YEAR/MONTH formula has no problem with calculating months in row 6 where the start date is more recent than the end date, the scenario in which an analogous [DATEDIF formula](#) fails.

Note. The results returned by DATEDIF and YEAR/MONTH formulas are not always identical because they operate based on different principles. The Excel DATEDIF function returns the number of **complete calendar months** between the dates, while the YEAR/MONTH formula operates on months' numbers.

For example, in row 7 in the screenshot above, the DATEDIF formula returns 0 because a complete calendar month between the dates has not elapsed yet, while YEAR/MONTH returns 1 because the dates belong to different months.

Example 4. Counting months between 2 dates ignoring years (MONTH function)

In case all of your dates are of the same year, or you want to calculate months between the dates ignoring years, you can use the MONTH function to retrieve the month from each date, and then subtract one month from the other:

=MONTH(B2) - MONTH(A2)

This formula works similarly to Excel DATEDIF with "YM" unit as demonstrated in the following screenshot:

	C2	=DATEDIF(A2, B2, "ym")	=MONTH(B2)-MONTH(A2)			
	A	B	C	D	E	F
1	Start Date	End Date	DATEDIF	MONTH		
2	4-May-15	4-Jun-15	1	1		
3	3-Feb-14	3-May-15	3	3		
4	14-Jul-15	17-Feb-15	#NUM!	-5		
5	10-May-15	18-May-15	0	0		
6	30-Jun-15	1-Jul-15	0	1		
7	8-May-15	9-Sep-15	4	4		

However, the results returned by two formulas differ in a couple of rows:

- Row 4: the end date is less than the start date and therefore DATEDIF returns an error while MONTH-MONTH yields a negative value.
- Row 6: the dates are of different months, but the actual date difference is just one day. DATEDIF returns 0 because it calculates whole months between 2 dates. MONTH-MONTH returns 1 because it subtracts the months' numbers from each other ignoring days and years.

How to calculate years between two dates in Excel

If you followed the previous examples where we calculated months and days between two dates, then you can easily derive a formula to calculate years in Excel. The following examples can help you check if you got the formula right :)

Example 1. Calculating complete years between two dates (DATEDIF function)

To find out the number of complete calendar years between two dates, use the old good DATEDIF with the "Y" unit:

```
=DATEDIF(A2, B2, "y")
```

	A	B	C
1	Start Date	End Date	Years between dates
2	4-May-2001	4-Jun-2015	14
3	3-May-2014	3-May-2015	1
4	14-Jul-2014	17-Feb-2015	0
5	10-May-1987	18-May-2014	27
6	30-Nov-2013	1-Jan-2014	0
7	11-Jun-2014	7-Jul-2013	#NUM!

Notice that the DATEDIF formula returns 0 in row 6, although the dates are of different years. This is because the number of full calendar years between the start and end dates equals to zero. And I believe you are not surprised to see the #NUM! error in row 7 where the start date is more recent than the end date.

Example 2. Calculating years between two dates (YEAR function)

An alternative way to calculate years in Excel is using the YEAR function. Similarly to the [MONTH formula](#), you extract the year from each date, and then subtract the years from each other:

```
=YEAR(B2) - YEAR(A2)
```

In the following screenshot, you can compare the results returned by the DATEDIF and YEAR functions:

	A	B	C	D	E
1	Start Date	End Date	Years (DATEDIF)	Years (YEAR)	
2	4-May-2001	4-Jun-2015	14	14	
3	3-May-2014	3-May-2015	1	1	
4	14-Jul-2012	17-Aug-2015	3	3	
5	10-May-1987	18-May-2014	27	27	
6	30-Nov-2013	1-Jan-2014	0	1	
7	11-Jun-2014	7-Jul-2013	#NUM!	-1	

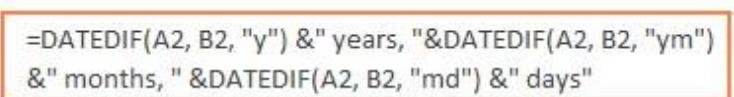
In most cases the results are identical, except that:

- The DATEDIF function calculates complete calendar years, while the YEAR formula simply subtracts one year from the other. Row 6 illustrates the difference.
- The DATEDIF formula returns an error if the start date is greater than the end date, while the YEAR function returns a negative value, as in row 7.

How to get date difference in days, months and years

To count the number of complete years, months and days between two dates in a single formula, you simply concatenate three DATEDIF functions:

```
=DATEDIF(A2, B2, "Y") & " years, "&DATEDIF(A2, B2, "ym") & " months, " &DATEDIF(A2, B2, "md") & " days"
```

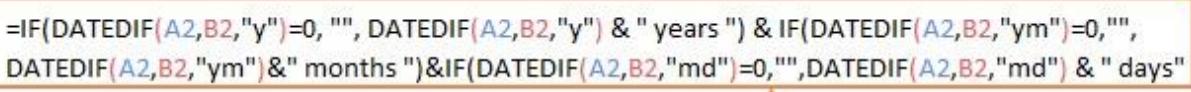


	A	B	C	D	E
1	Start Date	End Date	Years between dates		
2	4-May-2001	4-Jun-2015	14 years, 1 months, 0 days		
3	3-May-2014	3-May-2015	1 years, 0 months, 0 days		
4	14-Jul-2014	17-Feb-2015	0 years, 7 months, 3 days		
5	10-May-1987	18-May-2014	27 years, 0 months, 8 days		
6	30-Nov-2013	1-Jan-2014	0 years, 1 months, 2 days		

If you'd rather not display zero values, you can wrap each DATEDIF in the [IF function](#) as follows:

```
=IF(DATEDIF(A2,B2,"Y")=0, "", DATEDIF(A2,B2,"Y") & " years ") &  
IF(DATEDIF(A2,B2,"ym")=0,"", DATEDIF(A2,B2,"ym") & " months ") & IF(DATEDIF(A2, B2,  
"md")=0, "", DATEDIF(A2, B2, "md") & " days"
```

The formula displays only non-zero elements as demonstrated in the following screenshot:



	A	B	C	D	E	F
1	Start Date	End Date	Years between dates			
2	4-May-2001	4-Jun-2015	14 years 1 months			
3	3-May-2014	3-May-2015	1 years			
4	14-Jul-2014	17-Feb-2015	7 months 3 days			
5	10-May-1987	18-May-2014	27 years 8 days			
6	30-Nov-2013	1-Jan-2014	1 months 2 days			

DATEDIF formulas to calculate age in Excel

In fact, calculating someone's age based on the date of birth is a special case of calculating date difference in Excel, where the end date is today's date. So, you use a usual DATEDIF formula with "Y" unit that returns the number of years between the dates, and enter the TODAY() function in the end_date argument:

```
=DATEDIF(A2, TODAY(), "Y")
```

Where A2 is the birth date.

The above formula calculates the number of complete years. If you'd rather get the exact age, including years, months and days, then concatenate three DATEDIF functions like we did in the previous example:

```
=DATEDIF(B2,TODAY(),"y") & " Years, " & DATEDIF(B2,TODAY(),"ym") & " Months, " &  
DATEDIF(B2,TODAY(),"md") & " Days"
```

And you will get the following result:

```
=DATEDIF(B2,TODAY(),"Y") & " Years, " & DATEDIF(B2,TODAY(),"YM")  
& " Months, " & DATEDIF(B2,TODAY(),"MD") & " Days"
```

	A	B	C	D
1	Name	Date of birth	Age	
2	Mike	6-Jun-1996	18 Years, 10 Months, 24 Days	
3	Natalie	20-Apr-1983	32 Years, 0 Months, 10 Days	
4	Neal	16-Nov-2000	14 Years, 5 Months, 14 Days	
5	Peter	21-Aug-1984	30 Years, 8 Months, 9 Days	
6	Kate	30-Mar-1990	25 Years, 1 Months, 0 Days	