Figure out dates by using formulas in Excel 2010

Quick Reference Card

The calendar starts at 1900 in Excel for Windows

Dates are stored in Excel as serial numbers starting with 1, which for Excel for Windows represents January 1, 1900. That's when its calendar starts. Each day after that adds one number to the sequence. For example, February 1, 1900, is stored as 32. Storing dates as serial numbers make it possible for Excel to do date arithmetic. To find the number of days between two dates, Excel subtracts one serial number from another.

Note   1900 is the first year in Excel for Windows, but 1904 is the first year in Excel for Macintosh. If you are working in Excel for Windows and you open a document created in Excel for the Macintosh, the 1904 date system is automatically selected when you open the document. You can change the date system. In Excel, on the ribbon, click the **File** tab, select **Excel Options**, and then click **Advanced**. Under **When calculating this workbook**, select the workbook that you want, and then select or clear the **Use 1904 date system** check box.

How Excel recognizes dates

Use slashes or hyphens to separate the parts of a date so that Excel recognizes information and stores it as a serial number. 8/22/2011 and 22-August-2011 are both stored as serial number 40777. Excel will also recognize August 22, 2011 as a date. But it will not recognize August 22 2011, or 8,22,11 as a date. Excel stores such information as plain text, not as serial number 40777.

When Excel recognizes information as a date, you can select another date format on the **Home** tab on the ribbon, in the **Number** group.
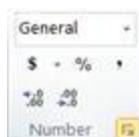
Click the arrow to open the **Format Cells** dialog box, click **Dates**, and make a date format selection.

Note   If the #VALUE error appears instead of a formula result, check to see if the dates in the formula are correctly formatted.

Type formulas correctly

Each formula must be very carefully typed. Missing a comma or parenthesis, inserting an extra space, or misspelling a function name will produce errors. For example, misspelling a function name will produce the #NAME error. (However, the Formula AutoComplete feature

in Excel makes it easier to ensure you have typed the name correctly.) You do not have to type function names in uppercase. Excel will convert the function name to uppercase for you.

- Start each formula by typing an equal (=) sign.
- If a formula does not work, make sure that you have not typed a space before the equal sign.
- Place a beginning and ending parentheses around function arguments.
- Inside the parentheses, separate the arguments with commas.

Find the number of days between two dates by subtracting one date from another

1	
2	2-May-11
3	15-Jul-11
4	

In an Excel spreadsheet, type the example start and end dates in cells A2 and A3 as shown in the illustration. Then, in an empty cell, type **=A3-A2**, which results in 74 days,

Find the number of workdays between two dates, using the NETWORKDAYS and NETWORKDAYS.INTL functions

NETWORKDAYS returns the number of whole working days between start_date and end_date. Working days exclude weekends and any dates identified in holidays.

NETWORKDAYS.INTL returns the number of whole workdays between two dates using parameters to indicate which and how many days are weekend days. Weekend days and any days that are specified as holidays are not considered as workdays.

NETWORKDAYS

Say that today is May 2, 2011, and your vacation starts on July 15, 2011. The formula takes into account any holidays that occur and weekdays during this period. Use this function if your days off are Saturday and Sunday to find out how many workdays until vacation.

1		
2	2-May-11	Today's date
3	15-Jul-11	Vacation start date
4	30-May-11	Holiday
5	4-Jul-11	Holiday
6		

In an Excel spreadsheet, type the example start date, end dates, and holidays, as shown in the illustration. Then, in an empty cell, type **=NETWORKDAYS(A2,A3,A4:A5)**, which equals 53 workdays between the two dates. Note that cell reference A4:A5 is the Holidays argument.

NETWORKDAYS.INTL

Use this function if your days off are other than Saturday and Sunday. The function has an extra argument for the weekend. In this example, the days off are Wednesday and Thursday, and you want to find out how many workdays until vacation.

1		
2	2-May-11	Today's date
3	15-Jul-11	Vacation start date
4	30-May-11	Holiday
5	4-Jul-11	Holiday
6		

In an Excel spreadsheet, type the example start date, end dates, and holidays, as shown in the illustration. Then, in an empty cell, type **=NETWORKDAYS.INTL(A2,A3,5,A4:A5)**, which equals 51 workdays between the two dates. You have two fewer days until vacation because the days off are Wednesday and Thursday, which is right before July 15.

When you type the comma after "A3," a dropdown list appears with different days off. "5" is the argument for Wednesday and Thursday.


```
=NETWORKDAYS.INTL(A2,A3,
   NETWORKDAYS.INTL(start_date, end_date, [weekend], [holidays])
       2 - Sunday, Monday
       3 - Monday, Tuesday
       4 - Tuesday, Wednesday
       5 - Wednesday, Thursday        Wednesday
```
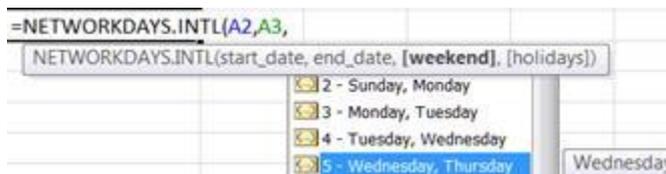
Find the date after a number of workdays, using the WORKDAY and the WORKDAY.INTL functions

WORKDAY returns the serial number of the date before or after a specified number of workdays.

WORKDAY.INTL returns the serial number of the date before or after a specified number of workdays using parameters to indicate which and how many days are weekend days

WORKDAY

You have 80 workdays days from April 4, 2011 to complete a project. Use this function if your days off are Saturday and Sunday.

1		
2	4-Apr-11	Project start date
3	80	Days to completion
4	30-May-11	Holiday
5	4-Jul-11	Holiday
6		

In an Excel spreadsheet, type the example start date, days to completion, and holidays, as shown in the illustration.

Tip   If Excel converts "80" to a date after you enter it into the spreadsheet, on the Home tab, in the Number group, click the arrow to open the **Format Cells** dialog box, click **General** to convert the date to 80, and then click **OK**.

In an empty cell, type =**WORKDAY(A2,A3,A4:A5).** The result is serial number 40751. To convert the serial number to a date, on the **Home** tab, in the **Number** group, click the dialog box launcher arrow. Then select **Date,** and then click **OK**. The project end date is 7/27/2011

WORKDAY.INTL

Use this function if your weekend days are not Saturday and Sunday. In this example, the weekend days are Tuesday and Wednesday, and you still have 80 workdays days to complete a project.

1		
2	4-Apr-11	Project start date
3	80	Days to completion
4	30-May-11	Holiday
5	4-Jul-11	Holiday
6		

In an Excel spreadsheet, type the example start date, days to completion, and holidays, as shown in the illustration. Then, in an empty cell, type =**WORKDAY.INTL(A2,A3,4,A4:A5).** The result is serial number 40753. To convert the serial number to a date, on the **Home** tab, in the **Number** group, click the dialog box launcher arrow. Then select **Date,** and then click **OK**. The date is 7/29/2011.

The completion date when you used the WORKDAY function, with Saturday and Sunday off is 7/27/2011. The completion date when you used the WORKDAY.INTL function is 7/29/2011 because the days off are Tuesday and Wednesday and that pushes the project end date out by two days.

When you type the comma after "A3," a dropdown list appears with different days off. "4" is the argument for Tuesday and Wednesday.

```
=WORKDAY.INTL(A2,A3,
    WORKDAY.INTL(start_date, days, [weekend], [holidays])
        1 - Saturday, Sunday
        2 - Sunday, Monday
        3 - Monday, Tuesday
        4 - Tuesday, Wednesday
```
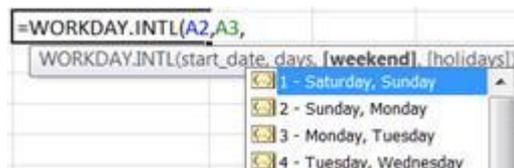
Find the date after a number of months, using the EDATE function

EDATE returns the serial number of the date that is the indicated number of months before or after the start date.

You have 25 months from 6/9/2011 to complete a project.

1		
2	6/9/2011	25
3		

To find the project end date, in an Excel spreadsheet, type the example start date in cell A1 and the months to completion in cell C2, as shown in the illustration. Then, in an empty cell, type =**EDATE(A2,C2)**. The result is serial number 41464. To convert the serial number to a

date, on the **Home** tab, in the **Number** group, click the dialog box launcher arrow. Then select **Date**, and then click **OK**. The project end date is 7/9/2013.

Find the date after a number of years, months, and days, by using the DATE function

DATE returns the serial number of a particular date.

You have 1 year, 7 months, and 15 days from 6/9/2011 to complete a project.

1		
2	6/9/2011	1
3		7
4		15
5		

In an Excel spreadsheet, type the example date in cell A2, and the number of years, months, and days in cells B2 through B4, as shown in the illustration. Then, in an empty cell, type **=DATE(2011+B2,6+B3,9+B4).** The project end date is 1/24/2013. "6" in the formula stands for the sixth month in cell A2, and "9 in the formula stands for the ninth day in cell A2.

If the numbers in column B change over time, for example 1 year in cell B2 becomes 2 years, just update the number in the cell and the formula will automatically update the result.