

# Count dates by day of week

F4	:	X	✓	f(x)	=SUMPRODUCT(--(WEEKDAY(dates,2)=E4))	G	H	I
1								
2								
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## Generic formula

```
= SUMPRODUCT( -- (WEEKDAY(dates) = day_num))
```

## Summary

To count dates by weekday (i.e. count Mondays, Tuesdays, Wednesdays, etc.), you can use the SUMPRODUCT function together with the WEEKDAY function. In the example shown, the formula in F4 is:

```
= SUMPRODUCT( -- (WEEKDAY(dates,2) = E4))
```

Note: "dates" is the [named range](#) B4:B15.

## Explanation

You might wonder why we aren't using [COUNTIF](#) or [COUNTIFS](#)? These functions seem like the obvious solution. However, without adding a helper column that contains a weekday value, there is no way to create a criteria for COUNTIF to count weekdays in a range of dates.

Instead, we use the versatile SUMPRODUCT function, which handles [arrays](#) gracefully without the need to use Control + Shift + Enter.

We are using SUMPRODUCT with just one argument, which consists of this expression:

```
-- (WEEKDAY(dates,2) = E4)
```

Working from the inside out, the WEEKDAY function is configured with the optional argument 2, which causes it to return numbers 1-7 for the days Monday-Sunday, respectively. This makes it easier to list the days in order with the numbers in column E in sequence.

WEEKDAY then evaluates each date in the named range "dates" and returns a number. The result is an array like this:

```
{1;3;7;1;5;2;7;1;7;5;4;7}
```

The numbers returned by WEEKDAY are then compared to the value in E4, which is 1:

```
{1;3;7;1;5;2;7;1;7;5;4;7} = 1
```

The result is an array of TRUE/FALSE values.

```
{TRUE;FALSE;FALSE;TRUE;FALSE;FALSE;TRUE;FALSE;FALSE;FALSE;FALSE}
```

SUMPRODUCT only works with numbers (not text or booleans) so we use the [double-negative](#) to coerce the TRUE/FALSE values to one's and zeros:

```
{1;0;0;1;0;0;0;1;0;0;0;0}
```

With a single array to process, SUMPRODUCT sums the items and returns the result, 3.

## Dealing with blank dates

If you have blank cells in the list of dates, you will get incorrect results, since the WEEKDAY function will return a result even when there is no date. To handle empty cells, you can adjust the formula as follows:

```
= SUMPRODUCT((WEEKDAY(dates,2) = E4) * (dates <> ""))
```

Multiplying by the expression (dates<>"") is one way to cancel out empty cells.