

How to Easily Find the First Friday of Each Month in Excel

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Introduction: Mastering Complex Date Calculations in Excel

Excel is an indispensable tool for data management, but handling complex time-based queries, such as identifying specific days within repeating monthly cycles, often requires sophisticated formula construction. The challenge lies in accurately determining a specific day of the week--like the first Friday of each month--regardless of which day the month begins. This task is crucial for scheduling, financial reporting (such as payroll cutoff dates), or logistical planning. While finding the first day of the month is straightforward, pinning down the first instance of a particular weekday requires a deep understanding of Excel's date-handling functions and their internal serial number system. This comprehensive guide will detail a powerful and efficient method utilizing a combination of the WEEKDAY function and the DATE function to solve this common scheduling dilemma.

The core difficulty in this type of calculation stems from the variability inherent in calendars. Unlike fixed dates, the position of the first Friday shifts relative to the start date of the month. To navigate this, we must first establish a reliable baseline--the first day of the current month--and then calculate the necessary offset to reach the target day (Friday). Our chosen method bypasses cumbersome IF statements or helper columns, consolidating the logic into a single, elegant formula. This formula leverages the mathematical properties of Excel's date serial numbers, ensuring high performance and ease of replication across large datasets. By mastering this technique, users can significantly enhance their ability to automate and streamline routine scheduling tasks within Excel.

This approach is significantly more robust than manual inspection or simple conditional checks. We will meticulously break down the components of the required formula, explaining how each part contributes to isolating the target date. The resultant formula, which appears complex at first glance, is actually a highly optimized mathematical expression designed to achieve maximum accuracy and efficiency. Pay close attention to how the formula manipulates the underlying date serial values, as this understanding is key to adapting this solution for finding any **Nth weekday** (e.g., the third Tuesday) of any given month.

Essential Excel Functions for Date Manipulation

Successfully calculating specific dates requires familiarity with three fundamental time-related functions: DATE, DAY, and WEEKDAY function. The DATE function is crucial for reconstituting a date from its component parts (year, month, day), ensuring that Excel recognizes the resulting value as a valid date serial number. The DAY function, conversely, extracts the day number (1 through 31) from an existing date serial number. By combining these, we can precisely determine the date of the first day of the month associated with any reference date.

The true power in solving this problem lies within the WEEKDAY function. This function returns an

integer between 1 (Sunday) and 7 (Saturday) that represents the day of the week for a given date. Crucially, the syntax allows for an optional return type argument, which dictates which day corresponds to the number 1. In complex arithmetic involving offsets, selecting the correct return type is paramount. For instance, using return type 2 means Monday is 1 and Sunday is 7, which can simplify some modulo operations, though the formula we will use here employs a standard arithmetic approach that relies on the default day numbering convention (or an implicit one that aligns with its specific logic).

Understanding the concept of the date serial number is fundamental to grasping how the final calculation works. Every date in Excel is stored as a sequential integer, counting the number of days since January 1, 1900. When we perform subtraction or addition on these dates, we are manipulating the number of days. For instance, subtracting the DAY function number from the reference date effectively resets the date to the last day of the previous month. Adding 1 then brings us to the first day of the current month. This manipulation is the starting point for calculating the desired offset to the first Friday.

Deconstructing the Formula Logic

The specific formula required to efficiently determine the first Friday of a month for a date located in cell **A2** is:

=A2-DAY(A2)+8-WEEKDAY(A2-DAY(A2)+2)

This formula, despite its appearance, is a highly optimized mathematical expression built upon three primary logical stages. The first stage identifies the first day of the month. The expression **A2-DAY(A2)** calculates the date serial number corresponding to the last day of the month preceding the date in **A2**. For example, if **A2** contains January 15th, 2023, **DAY(A2)** returns 15, and subtracting 15 days results in December 31st, 2022. Adding 1 to this result would give January 1st, 2023.

The second stage determines the day of the week for the first day of the month and establishes the reference point for the calculation. The term **A2-DAY(A2)+1** gives us the date of the 1st of the month. The complex part of the formula, **WEEKDAY(A2-DAY(A2)+2)**, calculates the number of days to add to the 1st of the month to reach the desired target day, which is Friday (represented by the number 6 in standard WEEKDAY function settings). The addition of 2 inside the **WEEKDAY** function acts as an internal offset, shifting the reference day to align the calculation correctly for Friday. This shift allows the subsequent subtraction from 8 to correctly determine the necessary chronological gap.

The third stage brings all components together to calculate the final date. The structure ... + 8 -

WEEKDAY(...) is the key offset mechanism. Since the WEEKDAY function returns a value between 1 and 7, subtracting this result from 8 effectively reverses the offset. For instance, if the first day of the month is a Sunday (WEEKDAY returns 1), we need to add 5 days to reach Friday ($1 + 5 = 6$). The formula achieves this: $8 - 1 = 7$, but since the calculation already started from the last day of the previous month, the net effect is a precise adjustment to the first Friday. The constant '8' in the formula is essential; it ensures that even if the first day of the month is already a Friday, the result accurately points to that same date.

Setting Up Your Excel Worksheet

Before applying this advanced formula, ensure your Excel worksheet is properly configured. We assume that you have a list of reference dates in Column A, which represent arbitrary points within the months for which you need to find the first Friday. These dates act as the input for our formula. It is good practice to format Column A clearly as "Date" to maintain readability and ensure Excel recognizes the inputs correctly as date serial numbers, even if they are entered using common date formats like MM/DD/YYYY or DD-MMM-YY.

For this demonstration, we will use Column B as the output column, where the resulting first Friday dates will be displayed. It is crucial to set the number formatting of Column B to "Date" before or immediately after entering the formula. If the formatting remains "General," Excel will display the raw date serial number (a five-digit integer), rather than the recognizable calendar date. This is a common pitfall when working with complex date mathematics. Ensure your headings are descriptive--for instance, "Reference Date" for Column A and "First Friday of Month" for Column B.

Consider the initial data setup, where we have a range of dates spanning several months or years. For maximum effectiveness, the reference dates should represent distinct months.

The specific example below illustrates a typical dataset where various dates are listed. Note how the formula is independent of the specific day listed in Column A--it only utilizes the month and year components to calculate the target date.

Practical Application: Entering the Formula

To demonstrate this solution, let us use the reference date list provided. Suppose we have the following list of dates in Column A of our Excel sheet, starting in cell **A2**:

	A	B	C	D	E	F
1	Date					
2	1/1/2023					
3	2/1/2023					
4	3/1/2023					
5	4/1/2023					
6	5/1/2023					
7	6/1/2023					
8	7/1/2023					
9	8/1/2023					
10	9/1/2023					
11	10/1/2023					
12	11/1/2023					
13	12/1/2023					
14						
15						
16						
17						
18						

Our goal is to populate cell **B2** with the date of the first Friday corresponding to the month of the date found in **A2** (1/1/2023). We must type the following structure into cell **B2** precisely as shown. This single formula encapsulates all the necessary logic to perform the complex date calculation, leveraging the mathematical offset explained previously.

=A2-DAY(A2)+8-WEEKDAY(A2-DAY(A2)+2)

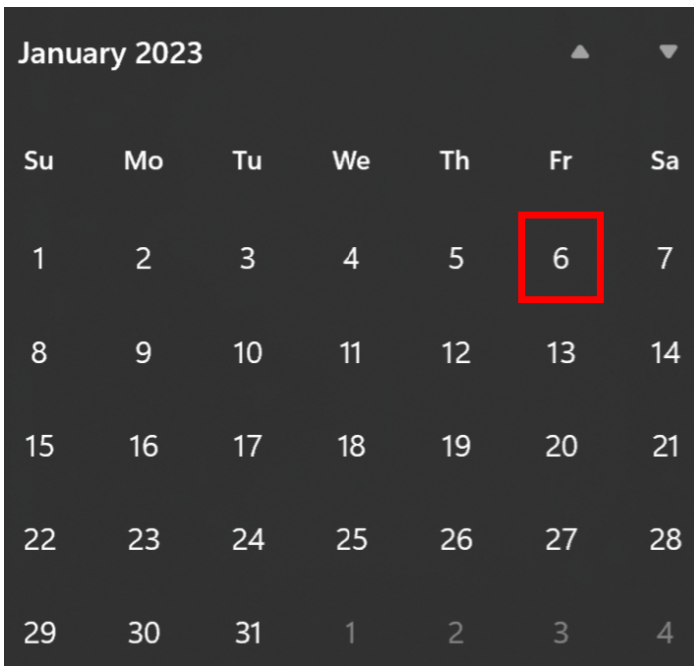
Once the formula is entered into **B2**, press Enter. If your cell formatting in B2 is set correctly to Date, the result should immediately display the calculated first Friday. If you encounter a large number, review the formatting settings for the cell. After confirming the calculation is correct for the first row, the efficiency of this method is realized through replication. We can then click and drag the fill handle (the small square at the bottom right corner of cell **B2**) down to the remaining cells in Column B, applying the relative cell reference logic to each date in Column A:

	A	B	C	D	E	F	G
1	Date	First Friday					
2	1/1/2023	1/6/2023					
3	2/1/2023	2/3/2023					
4	3/1/2023	3/3/2023					
5	4/1/2023	4/7/2023					
6	5/1/2023	5/5/2023					
7	6/1/2023	6/2/2023					
8	7/1/2023	7/7/2023					
9	8/1/2023	8/4/2023					
10	9/1/2023	9/1/2023					
11	10/1/2023	10/6/2023					
12	11/1/2023	11/3/2023					
13	12/1/2023	12/1/2023					
14							
15							
16							

Interpreting and Validating the Results

Upon successful application of the formula across the dataset, Column B now contains the date of the first Friday of the respective month for each corresponding date listed in Column A. This rapid calculation transforms a potentially time-consuming manual calendar check into an instantaneous automated process. It is essential, however, to perform a validation check to ensure the formula parameters are working as intended, especially concerning the WEEKDAY function's return type assumption.

Let us examine the first entry in our dataset. The reference date in cell **A2** is **1/1/2023**, which corresponds to January 2023. The calculated result in cell **B2** is **1/6/2023**. We must confirm whether January 6th, 2023, was indeed the first Friday of that month. Since January 1st was a Sunday, the days proceed as Monday (2nd), Tuesday (3rd), Wednesday (4th), Thursday (5th), and finally, Friday (6th). The validation confirms the formula's accuracy:



A calendar for January 2023. The days of the week are listed at the top: Su, Mo, Tu, We, Th, Fr, Sa. The dates are arranged in a grid. The date 6 is highlighted with a red square, indicating it is the first Friday of the month.

Su	Mo	Tu	We	Th	Fr	Sa
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	1	2	3	4

Next, consider the date in cell **A3**, which is **2/1/2023**, representing February 2023. The formula calculates the result in **B3** as **2/3/2023**. By reviewing a calendar for February 2023, we confirm that February 1st was a Wednesday. Therefore, February 3rd, the third day of the month, must be the first Friday.

This manual verification, supported by visual evidence, proves that the combined logic of finding the first day of the month and applying the precise WEEKDAY offset successfully locates the target day.

February 2023						
Su	Mo	Tu	We	Th	Fr	Sa
29	30	31	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	1	2	3	4

Adapting the Formula for Different Weekdays

One of the major benefits of understanding the underlying mathematical structure of this formula is the ease with which it can be adapted to find the first instance of any other day of the week (Monday, Tuesday, etc.). The key to this adaptation lies in adjusting the constant values used in the offset calculation. Recall that the original formula used 8 and 2 as constants to target Friday.

To modify this, we typically rely on the standard WEEKDAY function return type 1, where 1=Sunday, 2=Monday, ..., 6=Friday, 7=Saturday. If you want to find the first occurrence of a different day, you need to determine the correct offset value to replace the '2' in the WEEKDAY component. A common, simplified structure for finding the Nth day of the month uses the following generalized form, assuming the reference date is in A2 and you want the date calculation to target Day X:

=DATE(YEAR(A2), MONTH(A2), 1) + (Day_X - WEEKDAY(DATE(YEAR(A2), MONTH(A2), 1))) + (N-1)*7

While the original compact formula is faster because it avoids multiple uses of the DATE function, adapting the required offset based on the target day of the week is essential. For instance, to find the first Monday, the offset constant might need adjustment to align the result with WEEKDAY=2. The original formula structure **A2-DAY(A2) + 8 - WEEKDAY(A2-DAY(A2) + K)** relies on K being the constant that makes the final subtraction yield the correct day. For Monday, K would be 3; for Sunday, K would be 1. Understanding this pattern allows for flexible date manipulation without

recalculating the entire logic.

Summary and Key Takeaways

Calculating the first instance of a specific weekday within a given month in Excel does not require complex macros or programming knowledge. Instead, it relies on intelligently combining native date functions to exploit the underlying serial number system. The formula presented--utilizing the WEEKDAY function, the DAY function, and basic arithmetic manipulation--provides a robust, scalable, and highly accurate solution for identifying the first Friday of any month associated with a reference date.

The crucial steps involve establishing the baseline (the first day of the month) using the date manipulation components **A2-DAY(A2)**, and then applying a precise offset correction via the WEEKDAY subtraction. This technique ensures that the resulting date is always the first possible Friday occurring on or after the first day of the month. By mastering this single-cell calculation, users can significantly enhance their capacity for automated scheduling and report generation.

We confirmed through practical examples and visual calendar checks that each date generated in Column B accurately represents the first Friday of the month derived from the corresponding date in Column A. This validation reinforces the reliability of the compact mathematical approach over simpler, less flexible methods. Remember to maintain correct date formatting for the output cells to ensure the results are displayed as recognizable calendar dates rather than raw serial numbers.