

Excel: Use an IF Function with WEEKDAY

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Excel is recognized globally as a profoundly powerful and versatile platform, essential for data analysis, complex calculations, and developing sophisticated solutions across various business domains. Navigating time-based data often requires users to apply specific logic dependent on the day of the week--a task that might seem complicated but is effortlessly managed through the synergistic combination of two crucial native functions.

One of Excel's most compelling features is its ability to integrate logical operations, specifically through the IF function, with date and time functions, such as the WEEKDAY function. This specific integration allows users to construct highly precise conditional formulas that can instantly determine whether a given date falls on a weekend, a specific workday, or any other predefined criteria.

By mastering the interplay between the IF function and WEEKDAY, analysts can bypass tedious manual checks, automate complex scheduling or calculation processes, and ensure that date-sensitive data is processed accurately and reliably. This not only significantly boosts productivity but also guarantees the consistency of reports, saving valuable time and minimizing potential errors in critical business operations.

Introduction to Advanced Date Handling in Excel

Handling dates effectively is a fundamental requirement in data management. Many organizational workflows, such as payroll processing, inventory tracking, or project deadlines, inherently depend on knowing the specific day of the week a date falls upon. Traditional manual methods of checking dates against a calendar are slow and prone to human error, especially when dealing with large datasets spanning months or years.

This is where the automation capabilities of Excel shine. By treating dates not merely as sequential numbers but as objects with inherent properties (like the day of the week), we can establish sophisticated logical tests. The synergy of the logical IF function and the date-specific WEEKDAY function provides the precise mechanism needed to execute these tests flawlessly, returning customized text or calculated results based on the outcome.

Understanding the foundational principles of these functions is essential before diving into the practical formulas. The IF function acts as the decision-maker, while the WEEKDAY function provides the necessary numerical input--the day identifier--that the IF function needs to evaluate its condition. This modular approach ensures clarity and powerful control over date-sensitive logic within any spreadsheet application.

Understanding the Core Functions: IF and WEEKDAY

The structure of any advanced conditional formula in Excel relies heavily on the capabilities of its

constituent parts. The IF function operates on the premise of a logical test, yielding one outcome if the test is true and a different outcome if the test is false. Its standard syntax is `=IF(logical_test, value_if_true, value_if_false)`. The entire power of the application we are discussing lies in constructing the logical test using the output of the WEEKDAY function.

The WEEKDAY function takes a date as an argument and returns an integer representing the day of the week. While it supports different return type systems, the default setting is the most commonly used for basic conditional logic. Specifically, the default system designates Sunday as 1 and Saturday as 7. This numerical output is deterministic, meaning every date passed into the function will consistently return a number between 1 and 7, irrespective of the date format applied in the cell.

When these two functions are nested, the WEEKDAY function evaluates the date first, generating a numerical result. This result is then immediately fed into the logical test of the outer IF function (e.g., Is the result equal to 1?). Based on whether this comparison is true or false, the IF function executes the requested action, such as displaying a custom text label or performing a specific calculation.

The WEEKDAY Function's Return Values

A critical aspect of utilizing the WEEKDAY function correctly is a comprehensive understanding of its return type parameter. While the default behavior (omitting the optional second argument) assumes that Sunday is day 1, Excel provides flexibility to accommodate different regional standards or specific business requirements by allowing the user to define which day starts the week.

The standard return type system, which is crucial for the most common formulas, assigns the following integer values to the days of the week:

1: Sunday

2: Monday

3: Tuesday

4: Wednesday

5: Thursday

6: Friday

7: Saturday

If you are structuring a formula and need to check for a specific day, you must reference the corresponding integer value. For instance, testing for a Monday requires checking if the WEEKDAY output equals 2, while checking for a Friday requires testing for 6. Consistency in using the default return type (or explicitly defining a different one) is paramount to prevent logical errors in your spreadsheet model.

To demonstrate the versatility of this technique, we will explore the structure of two fundamental formulas using the nested **IF** and **WEEKDAY** functions in Excel:

Formula 1: Create IF Function to Check if Date is on Specific Day of Week

=IF(WEEKDAY(A2)=1, "Sunday", "Not Sunday")

This particular formula initiates a logical comparison. It first determines the numerical day of the week for the date located in cell **A2**. It then checks if this number is equal to 1 (which signifies Sunday under the default Excel settings). If the condition is met (TRUE), it returns the string "Sunday"; otherwise (FALSE), it returns "Not Sunday" as a result.

Formula Construction 1: Checking for a Specific Day (Sunday Example)

The simplest and most direct application of the IF function with WEEKDAY is to test if a given date matches one specific day. This is achieved by setting the numerical output of the WEEKDAY function equal to the target day's integer value (1 through 7). For tasks like identifying weekend delivery dates or checking scheduling constraints, this formula is highly efficient.

Consider the goal of identifying all Sundays within a list of transaction dates. Using the default numbering system (where Sunday is 1), the logical test becomes `WEEKDAY(DateCell)=1`. This test provides the Boolean output (TRUE or FALSE) required by the outer IF function to assign the desired classification. If we want to check for Monday instead, we simply replace the 1 with 2, resulting in `WEEKDAY(DateCell)=2`.

The formula is highly customizable. While our example uses simple text strings ("Sunday" or "Not Sunday") for the result values, these parameters can easily be replaced with numerical calculations, references to other cells, or even nested IF statements for more complex decision trees. For instance, if a date is Sunday (TRUE), you might instruct Excel to calculate a weekend premium payment; if false, you instruct it to calculate the standard rate.

Practical Application 1: Identifying Specific Days in a Dataset

To illustrate this concept practically, imagine a scenario where we have a column of dates and need to quickly ascertain which days correspond to Sunday. This is often necessary for reporting

on staff utilization, sales spikes, or logistical constraints that only occur on the first day of the calendar week.

The following visual example shows a column of dates in column A. We aim to populate column B with a label indicating whether the adjacent date is a Sunday.

	A	B	C	D	E
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					

We initiate the process by typing the following specific formula into cell **B2**, targeting the date in **A2**:

=IF(WEEKDAY(A2)=1, "Sunday", "Not Sunday")

Once the formula is entered into **B2**, we leverage Excel's fill handle functionality. By clicking and dragging the formula down to each remaining cell in column B, the relative reference **A2** automatically adjusts (to A3, A4, etc.) for every subsequent row, processing the entire dataset efficiently:

	A	B	C	D	E	F	G
1	Date	Sunday?					
2	1/1/2023	Sunday					
3	2/1/2023	Not Sunday					
4	3/1/2023	Not Sunday					
5	4/1/2023	Not Sunday					
6	5/1/2023	Not Sunday					
7	6/1/2023	Not Sunday					
8	7/1/2023	Not Sunday					
9	8/1/2023	Not Sunday					
10	9/1/2023	Not Sunday					
11	10/1/2023	Sunday					
12	11/1/2023	Not Sunday					
13	12/1/2023	Not Sunday					
14							
15							
16							
17							
18							

The resulting output clearly displays either "Sunday" or "Not Sunday," providing an instant, automated classification for every date in the source column. This powerful method confirms that the WEEKDAY function is returning an integer value between 1 (Sunday) and 7 (Saturday) which the IF function evaluates to produce the specified text label.

Note: Should the analytical requirement shift to checking for a different day--say, Monday--the user simply modifies the comparison value from **1** to **2** (for Monday) and updates the resulting text strings accordingly, as shown below:

=IF(WEEKDAY(A2)=2, "Monday", "Not Monday")

Formula Construction 2: Distinguishing Between Weekdays and Weekends

While checking for a single specific day is useful, a far more common requirement is classifying dates into one of two broader categories: weekday (Monday through Friday) or weekend (Saturday and Sunday). This classification demands a more complex logical test within the IF function, as the condition must account for a range of numerical values rather than a single integer.

Formula 2: Create IF Function to Check if Date is on Weekday or Weekend

=IF(AND(WEEKDAY(A2)>1, WEEKDAY(A2)<7), "Weekday", "Weekend")

This particular formula introduces the logical AND function to perform two simultaneous tests: first, checking that the day number is greater than 1 (not Sunday), and second, checking that the day number is less than 7 (not Saturday). If both conditions are TRUE, the date is categorized as a "Weekday"; otherwise, it is labeled "Weekend" as a result.

Utilizing the Logical AND Function for Range Checking

To effectively define the "weekday" category, we must establish a range. Using the default WEEKDAY numbering (1=Sunday, 7=Saturday), the weekdays are represented by the integers 2, 3, 4, 5, and 6. To verify that the output of WEEKDAY(A2) falls within this range, we employ the AND function. The AND function ensures that multiple logical conditions must be simultaneously met for the overall test to return TRUE.

The logical test is structured as AND(Test1, Test2).

Test 1: WEEKDAY(A2)>1. This condition successfully excludes Sunday (1).

Test 2: WEEKDAY(A2)<7. This condition successfully excludes Saturday (7).

Only when the date is Monday (2) through Friday (6) will both conditions within the AND function evaluate to TRUE. The entire AND clause then forms the logical test for the primary IF function. If the AND returns TRUE, the date is a "Weekday"; otherwise, it must be either 1 (Sunday) or 7 (Saturday), resulting in "Weekend."

This technique of range checking using logical functions like AND, OR, and NOT is essential for building robust conditional formulas in Excel, allowing the user to define complex criteria based on numeric outputs derived from data properties, such as the day of the week.

Practical Application 2: Automating Weekend/Weekday Classification

This application is invaluable in scenarios such as calculating differential shift pay, filtering out non-working days from schedules, or analyzing sales figures based on whether they occurred during the standard work week or the weekend period.

Following our date list example, we will now apply the complex formula into cell **B2** to check if the date in cell **A2** is classified as a weekday or a weekend:

=IF(AND(WEEKDAY(A2)>1, WEEKDAY(A2)<7), "Weekday", "Weekend")

As demonstrated previously, after entering the formula into the initial cell, we must click and drag this formula down to apply the logic across the entire range of dates in column A. This instantly populates column B with the appropriate classification for every row.

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

The final output generated by the formula clearly indicates "Weekday" for all dates falling between Monday and Friday (inclusive) and "Weekend" for those falling on Saturday or Sunday. This immediate classification significantly streamlines data processing, allowing for quick summaries or subsequent filtering based on the day type.

Advanced Considerations and Customization

While the default return type (Sunday=1) is standard, users operating under ISO 8601 or other regional standards may prefer a different numbering system. Excel accommodates this by allowing an optional second argument in the [WEEKDAY function](#). For instance, using `WEEKDAY(A2, 2)` sets Monday as 1 and Sunday as 7. If this alternate system is used, all logical checks (e.g., `>1` or `=7`) must be adjusted accordingly to match the new numbering convention.

Furthermore, the output of these [conditional formulas](#) does not need to be limited to simple text labels. Analysts frequently use the IF/WEEKDAY combination to control calculation flow. For example, if a day is a weekend, the formula might return a 0, which can then be used in a SUM formula to exclude weekend sales figures from weekly totals, or return a multiplier (e.g., 1.5) for overtime calculations.

For highly granular control, it is possible to nest multiple IF functions within the primary TRUE or FALSE arguments to check for specific conditions for each day of the week, although the SWITCH or IFS functions might offer a cleaner alternative in newer versions of Excel for such complexity.

Conclusion: Optimizing Workflow Efficiency

The combination of the IF function and the WEEKDAY function represents a cornerstone of efficient date manipulation in Excel. Whether the requirement is simple day identification or complex weekday/weekend classification requiring the AND function, these techniques transform static date lists into dynamic datasets capable of self-classification and automated processing.

By integrating these conditional formulas into daily reporting and data analysis workflows, professionals can achieve a higher degree of accuracy and dramatically reduce the time spent on manual data verification. Mastering this foundational skill ensures that your calculations remain accurate, reliable, and instantly adaptable to large-scale data processing requirements.