

How to Find a Date from a Week Number in Google Sheets

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November 20, 2025

RECOMMENDED CITATION

stats writer (2025). *How to Find a Date from a Week Number in Google Sheets*.
PSYCHOLOGICAL SCALES. Retrieved from <https://scales.arabpsychology.com/?p=98016>

To accurately find the calendar date corresponding to a specific week number in Google Sheets, reliance solely on simple built-in functions like WEEKDAY often proves insufficient. While the WEEKDAY function is excellent for identifying the day of the week for a known date, converting a week number back into a specific date requires a more robust, arithmetic approach. This is primarily because week numbering conventions, such as the widely accepted ISO 8601 standard, can vary significantly depending on regional settings and definitions of the first day of the year and the first week.

The core challenge lies in determining the date of the first day of the year and then calculating the offset required to jump forward to the desired week. We must construct a complex formula utilizing the DATE function combined with careful arithmetic manipulation based on the inherent properties of day enumeration within the spreadsheet system. This detailed guide provides the precise methodology and formula structure necessary to perform this crucial conversion accurately, ensuring that your data analysis relies on the correct calendar references.

Deconstructing the Google Sheets Formula for Week-to-Date Conversion

To accurately derive the date from a given week number and year, we employ a sophisticated formula that calculates the date of January 1st of the specified year and then applies offsets to reach the Sunday (or any designated start day) of the target week. This methodology bypasses limitations in simpler functions by using direct date arithmetic. The following syntax represents the foundational approach used for this calculation within Google Sheets, assuming the week begins on **Sunday**, which is a common convention in several regions, including the United States.

=DATE(B2,1,1)+(A2-1)*7-(WEEKDAY(DATE(B2,1,1)))+1

This powerful single-line command performs several complex calculations sequentially. It identifies the starting point of the calendar year, determines how many days must be skipped to account for the days before the first Sunday of the year, and then jumps ahead the appropriate number of weeks. Understanding each component of this formula is essential for successful adaptation and troubleshooting. The formula structure ensures that regardless of which day of the week January 1st falls on, the resulting date accurately points to the starting day of the week specified in cell A2.

The mathematical approach is necessary because standard spreadsheet functions are optimized for converting dates to week numbers, not the reverse. By leveraging the fundamental calculation of date serial numbers--where each day is represented by an integer--we can manipulate the year's start date with high precision. This method allows us to overcome potential ambiguities related to regional settings or non-standard week definitions, providing a reliable outcome for data integrity.

Essential Prerequisites and Cell References

Before implementing the formula, it is crucial to establish the necessary data inputs within your spreadsheet. This formula relies specifically on two distinct pieces of information being available in separate cells: the numerical representation of the target week and the four-digit year. Consistency in cell referencing is paramount for the formula's integrity, and the assumptions listed below are based on the cell references used in the syntax provided previously.

Cell **A2** contains the desired week number (e.g., 14). This value must be an integer between 1 and 52 (or 53).

Cell **B2** contains the specific four-digit year (e.g., 2023). Ensure this is the full year number, not just the last two digits.

The standard interpretation for this formula assumes that the first day of the calculated week is considered to be **Sunday**, unless modified by changing the final additive digit.

By clearly defining these cell inputs, the formula remains **dynamic** and **reusable**. If you need to calculate the date for a different week or year, you only need to update the values in cells A2 and B2, and the resulting date will automatically adjust. This structure promotes efficiency and prevents the need for manual recalculation of internal values, which is the cornerstone of effective spreadsheet modeling for large datasets or recurring analytical tasks.

Step-by-Step Formula Breakdown: Calculating the Start of the Year

The initial segment of the formula is dedicated entirely to establishing a fixed calendar start point-- January 1st of the specified year. This ensures all subsequent calculations are anchored correctly. The formula begins with `DATE(B2, 1, 1)`. This segment uses the DATE function, which takes the year (from B2), the month (1 for January), and the day (1) to return the serial number corresponding to the first day of the year. This serial number is the foundational value upon which all further arithmetic is performed in the spreadsheet environment.

Once January 1st is established, the next crucial step is determining the day of the week this date falls on. This is achieved using the `WEEKDAY(DATE(B2, 1, 1))` component, which utilizes the WEEKDAY function. By default in Google Sheets (when the optional type argument is omitted or set to 1), the `WEEKDAY` function returns 1 for Sunday, 2 for Monday, and so on, up to 7 for Saturday. This result is essential because it tells us precisely how many days January 1st must be shifted backward to align with the chosen start day of the week (in this default case, Sunday).

The subsequent subtraction, `- (WEEKDAY(DATE(B2, 1, 1)))`, effectively rolls the calendar back from January 1st to the previous Saturday. For example, if January 1st is a Wednesday

(WEEKDAY returns 4), subtracting 4 moves the date back three days to Saturday, December 29th of the previous year (in terms of serial number). This deliberate backward movement sets the stage for the final adjustment, ensuring that the next step always lands us squarely on the correct Sunday, thereby initiating the cycle of Week 1 correctly. This clever manipulation accounts for the potential partial week that might exist at the very beginning of the year.

Adjusting for the Correct Week Number Offset

After establishing a base point near the beginning of the year--specifically, the Saturday preceding the first Sunday of the year--the formula must then calculate the total number of days necessary to skip forward to the target week. This is handled by the term $(A2 - 1) * 7$, where A2 holds the target week number. We subtract 1 from the week number because Week 1 starts immediately after the initial adjustment has been made, meaning we only need to account for the full seven-day periods of weeks 2, 3, 4, and so on. If we were calculating Week 1, this component would evaluate to zero $(1-1) * 7$, meaning no additional offset is needed beyond the initial adjustment.

Multiplying the adjusted week number by 7 converts the remaining weeks into the total number of days that must be added to our base date. This calculated number of days represents the precise weekly offset. For instance, if the target is Week 14 ($A2=14$), the calculation is $(14 - 1) * 7$, or $13 * 7$, resulting in 91 days. These 91 days are added to the adjusted start date, ensuring we land precisely on the start day of Week 14. This method avoids reliance on complex internal week numbering schemes, instead favoring transparent day arithmetic.

This component is critical for the formula's success, as it reliably translates the abstract concept of a week number into a concrete sequential number of days relative to the start of the calendar year's first recognized week. By using multiplication by 7, we guarantee that we move in exact weekly increments, maintaining the integrity of the target week definition established by the user, regardless of leap years or other calendar variations which are handled automatically by the underlying spreadsheet DATE function.

Specifying the Start Day of the Week (Sunday Start Default)

The very last term in the formula, $+1$, is the final fine-tuning mechanism that determines which day of the week is returned as the start date. As previously mentioned, the component $-(WEEKDAY(DATE(B2, 1, 1)))$ sets the calendar back to the Saturday preceding the first Sunday of the year. Therefore, adding 1 day to that result positions the date exactly on the next day, which is **Sunday**, thus defining the start day of the week for the calculated result.

If you prefer a different day of the week to be returned, you simply adjust this final additive constant. This adjustment is highly flexible and gives the user ultimate control over the output date, making the formula adaptable to any regional requirement. For example, if you wish to return the

Monday of the target week, you would replace the +1 with +2. This is because Monday is one day after Sunday in the weekly cycle, and adding a higher number shifts the date further along the seven-day period.

This sequential modification allows for versatile application based on varying regional or project-specific requirements. The sequence below demonstrates the necessary adjustment for each potential start day:

To return the **Sunday** date, ensure the formula ends with +1.

To return the **Monday** date, replace the final 1 with 2.

To return the **Tuesday** date, replace the final 1 with 3.

To return the **Wednesday** date, replace the final 1 with 4.

To return the **Thursday** date, replace the final 1 with 5.

To return the **Friday** date, replace the final 1 with 6.

To return the **Saturday** date, replace the final 1 with 7.

This granular control over the final day allows the formula to be universally adaptable, regardless of the user's definition of the start of the week. This is particularly valuable when integrating data from systems that adhere to different regional standards.

Practical Example: Finding the Date for a Specific Week (Sunday Start)

To illustrate the practical application of this complex formula, let us consider a specific scenario. Suppose an analyst needs to determine the exact calendar date of the Sunday that initiates Week 14 of the year 2023. This requires inputting 14 into cell A2 (Week Number) and 2023 into cell B2 (Year). Since we are targeting the Sunday start date, we will utilize the default formula ending in +1.

We can enter the following comprehensive formula into cell C2 in [Google Sheets](#) to execute this calculation:

=DATE(B2,1,1)+(A2-1)*7-(WEEKDAY(DATE(B2,1,1)))+1

Upon execution, the system first calculates the serial date of January 1, 2023. It then determines that January 1, 2023, was a Sunday (the [WEEKDAY](#) function returns 1). The formula adjusts the start point backward, then adds the offset for 13 full weeks (91 days), and finally adds 1 to land

exactly on the Sunday of the 14th week. The following visualization demonstrates the setup and output within the spreadsheet environment, clearly showing the inputs and the resulting date:

C2 fx `=DATE(B2,1,1)+(A2-1)*7-(WEEKDAY(DATE(B2,1,1)))+1`

	A	B	C	D
1	Week	Year	Start Day of Week (Sunday)	
2	14	2023	4/2/2023	
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

As confirmed by the calculation, the start day of week 14 in 2023, assuming a Sunday start, is **4/2/2023**. This date represents the beginning of that specific week's seven-day cycle based on the regional convention where Sunday marks the start of the calendar week. This process is highly accurate because the formula rigorously accounts for the specific day-of-week sequence starting from the very beginning of the year, preventing common errors associated with partial week counting.

Modifying the Formula for an ISO 8601 Standard Week Start (Monday Start)

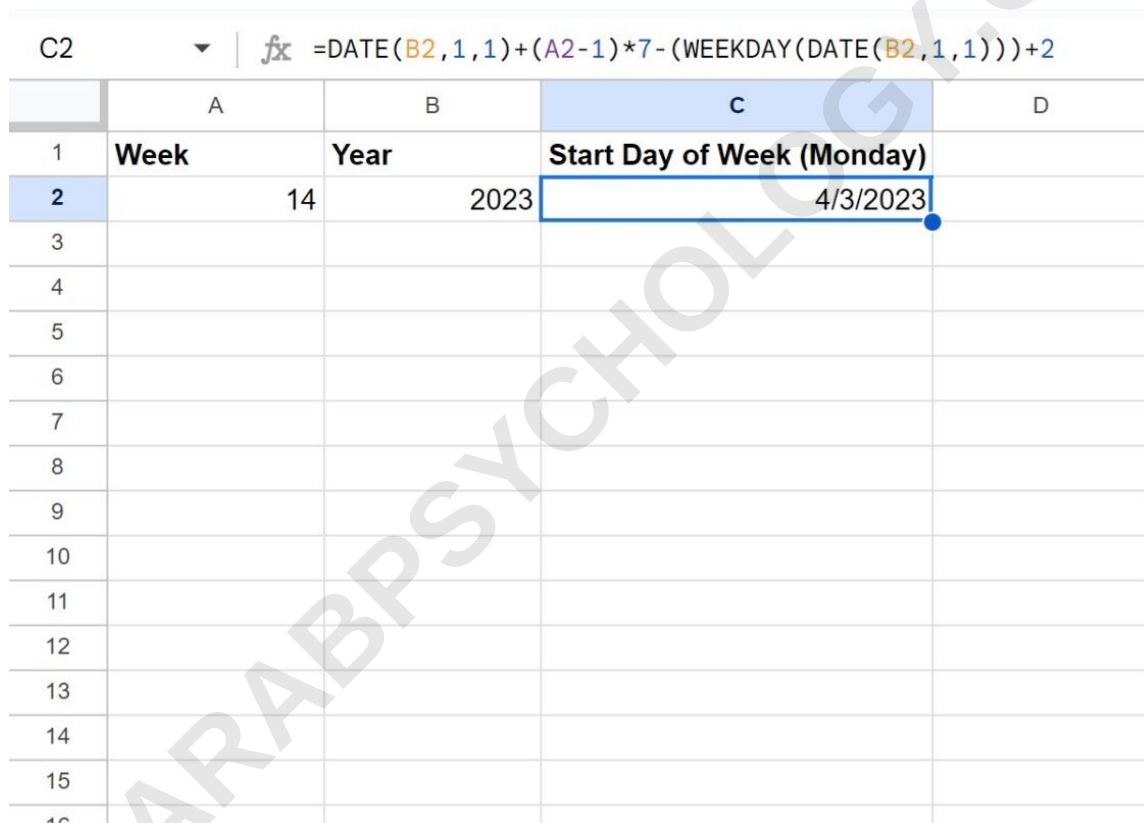
In global business and many technical fields, the ISO 8601 standard is widely adopted. This standard mandates that the week begins on **Monday**. To align our formula with this standard, only a minor but critical adjustment is required: changing the final additive constant from **+1** (for Sunday) to **+2** (for Monday). This adjustment shifts the resulting date forward by one day, ensuring that the calculation accurately reflects the Monday start date for the target week number.

If we maintain the same inputs--Week 14 (A2) and Year 2023 (B2)--but wish to find the corresponding Monday date, the revised formula becomes:

=DATE(B2,1,1)+(A2-1)*7-(WEEKDAY(DATE(B2,1,1)))+2

This modified formula performs the exact same initial arithmetic to find the base Saturday preceding the first week. However, the final addition of +2 ensures that the calculation jumps two days past that Saturday, landing precisely on Monday. This crucial change allows users operating under the ISO 8601 convention to utilize the same underlying mathematical structure while adhering to their preferred weekly standard without relying on potentially inconsistent built-in functions.

The following screenshot demonstrates the application of this Monday-start formula in the spreadsheet, confirming the resulting date change based on the adjustment:



	A	B	C	D
1	Week	Year	Start Day of Week (Monday)	
2	14	2023	4/3/2023	
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				

When applying this convention, the start day of week 14 in 2023 is determined to be **4/3/2023** (April 3rd). This result highlights the one-day shift caused by adopting the Monday start, emphasizing the importance of defining the start day based on the specific requirements of the data set or geographical context being analyzed. Careful modification of the final additive term is the only required step to switch seamlessly between regional week conventions.

Advanced Considerations and Implementation Notes

While the explicit arithmetic method presented is highly reliable, spreadsheet users should be aware of potential pitfalls during implementation. Firstly, ensure that the cell containing the resulting formula (e.g., C2) is formatted correctly as a **Date**. If the cell is formatted as a General or Number, the output will appear as a large integer serial number (e.g., 45018 for 4/2/2023), which represents the number of days since the spreadsheet epoch (usually December 30, 1899).

Secondly, although Google Sheets offers functions like `ISOWEEKNUM` to calculate the week number according to ISO 8601, reversing that calculation reliably often requires this custom formula, especially when dealing with years where Week 1 might start late in January or include days from the previous calendar year. The arithmetic approach maintains complete transparency and control, avoiding dependence on complex, often region-specific, function interpretations.