

Learn How to Convert Time Durations to Minutes in Excel

Authored by
Mohammed looti

June 10, 2026

RECOMMENDED CITATION

Mohammed looti (2026). *Learn How to Convert Time Durations to Minutes in Excel*. PSYCHOLOGICAL STATISTICS. Retrieved from <https://statistics.arabpsychology.com/?p=3724>

Understanding Time Duration in Microsoft Excel

[Microsoft Excel](#) is an indispensable tool for data analysis, but handling time calculations can sometimes pose challenges due to the way the software internally manages date and time values. Unlike standard decimal numbers, Excel stores time as a fraction of a 24-hour day, which is known as the [Excel date-time system](#). For specialized analysis, such as calculating average speeds or monitoring processes, it is often necessary to convert these fractional time durations into a single, standardized unit, such as minutes. This conversion ensures uniformity and simplifies subsequent calculations.

The core difficulty arises because a duration entered as "01:00:00" (one hour) is stored internally not as the number 60 (minutes), but as approximately 0.04167, representing 1/24th of a day. To bridge this gap and successfully translate the duration into its corresponding total minutes, a specific mathematical transformation must be applied. This transformation leverages the fixed relationship between minutes and the Excel unit of one day. Understanding this fundamental concept is crucial before attempting the conversion formula itself.

Whether you are tracking athletic performance, monitoring project timelines, or calculating labor costs, converting duration data provides a clear, quantitative basis for comparison and reporting. The method we explore below is universally applicable across different versions of Excel and ensures high precision when dealing with complex time entries that include hours, minutes, and seconds.

The Core Formula for Time Duration Conversion

To efficiently convert a time duration stored in Excel into its equivalent value in minutes, we employ a concise and powerful formula. This formula effectively bypasses Excel's fractional time storage and forces the output into a decimal number representing total minutes. The structure of the required formula is built upon fundamental unit conversions combined with Excel's specialized functions.

The following formula is used to perform the conversion. If the time duration is stored in cell B2, the implementation looks like this:

=VALUE(B2*24*60)

This particular configuration performs two critical operations simultaneously. First, multiplying the cell value (B2) by 24 (the number of hours in a day) converts the fractional Excel time unit into total hours. Second, multiplying the result by 60 (the number of minutes in an hour) completes the conversion, yielding the total duration expressed in minutes. Finally, the [VALUE function](#) is used to ensure the final output is treated strictly as a numerical value, preventing Excel from reformatting

the result back into a time or date format. For instance, if cell B2 contains the duration **10:14:22**, the formula calculates this duration as **614.37**, meaning 614.37 minutes.

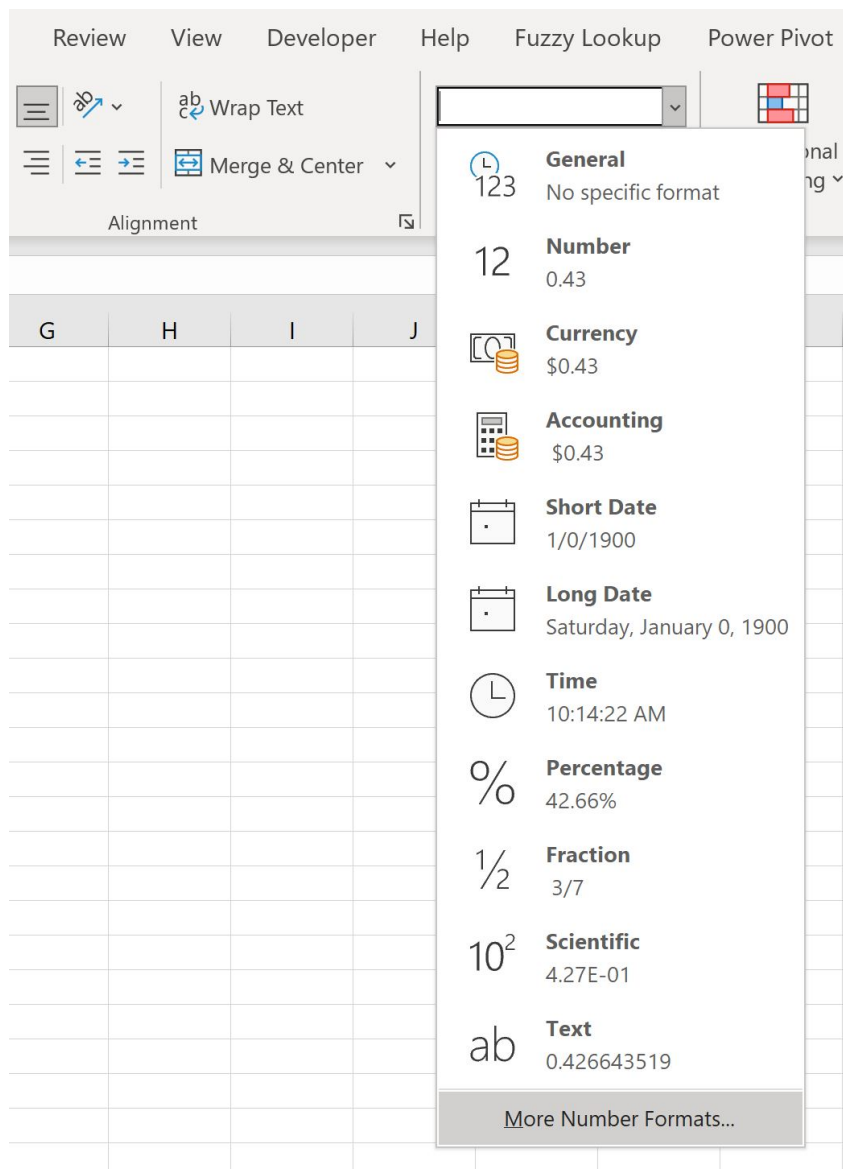
Step-by-Step Implementation: Formatting Duration Data

Before applying the conversion formula, it is essential to ensure that the source data is correctly recognized by Excel as a time duration. A dataset showing competition results, for example, requires explicit time formatting so that Excel processes the entries as fractions of a day, rather than as simple text strings. Suppose we are working with a dataset detailing the time it took various athletes to finish a competition, structured with a column for the athlete and a column for the duration, as shown below:

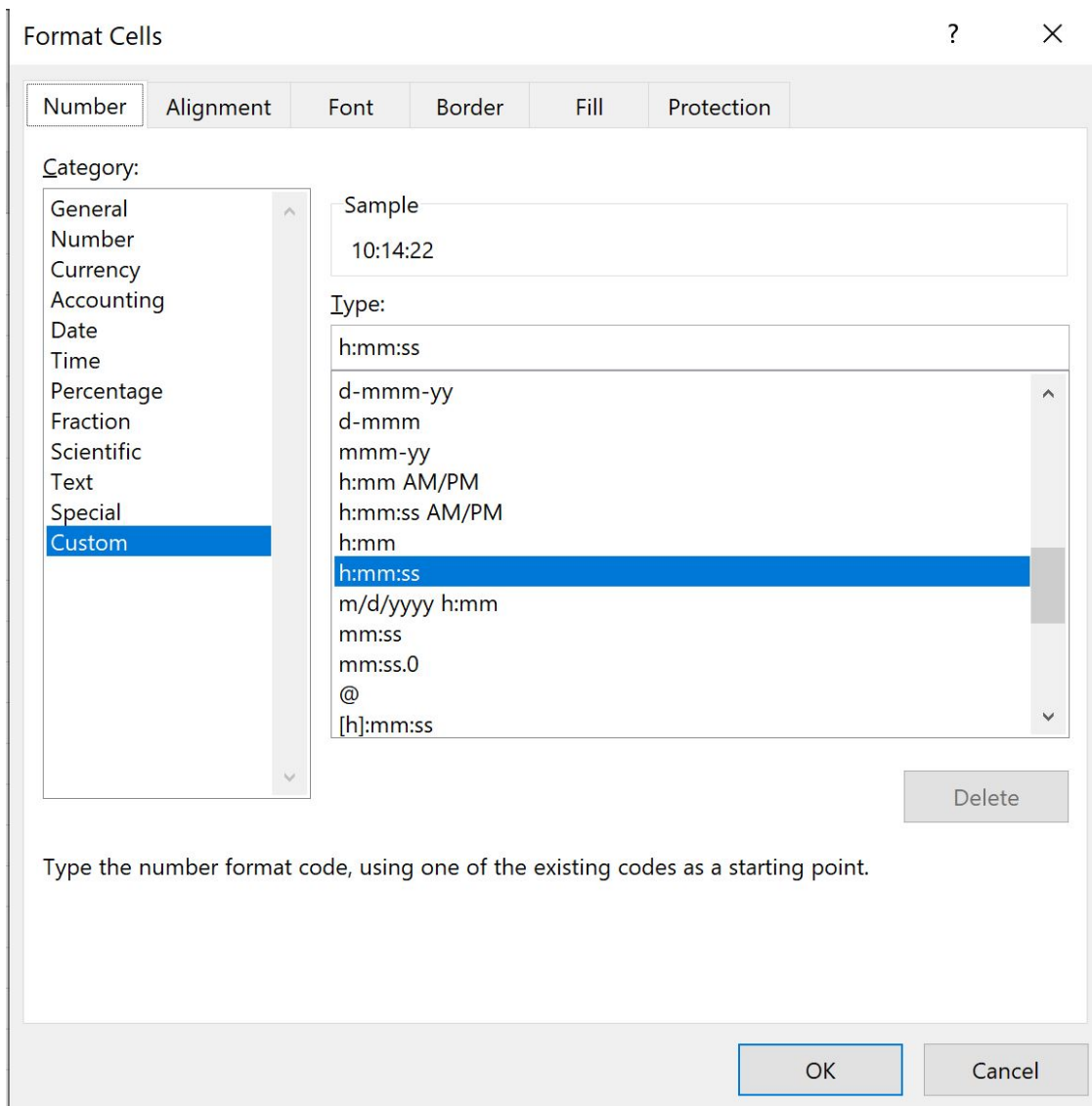
	A	B	C	D	E	F
1	Athlete	Duration				
2	Andy	10:14:22				
3	Bob	26:14:22				
4	Chad	13:30:00				
5	Doug	12:00:00				
6	Eric	2:23:09				
7	Frank	1:14:15				
8	George	9:45:40				
9	Henry	10:15:00				
10	Isaiah	15:00:24				
11	John	34:15:19				
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						

To properly prepare this data for calculation, we must verify the formatting of the time values in the Duration column. This involves highlighting the relevant range, such as **B2:B11**, and accessing the **Number Format** settings. This process is initiated by clicking the Number Format dropdown menu located in the Home tab, followed by selecting **More Number Formats**. This sequence opens the Format Cells dialog box, giving us granular control over how the data is displayed and interpreted

by the software.



Within the Format Cells dialog, the most reliable way to ensure correct time interpretation, especially for durations that may exceed 24 hours, is to use a specific [Custom Number Format](#). By navigating to the Category called **Custom** on the left-hand side, we can select or input the format **:mm:ss**. The square brackets around the 'h' are crucial, as they instruct Excel to display the cumulative hours, even if the total duration exceeds 24 hours (e.g., 26 hours will show as 26, not 2). After selecting **:mm:ss**, click **OK** to apply the formatting to the duration range.



Applying the Conversion Formula

Once the data in the Duration column is correctly formatted as time, we can proceed with the calculation phase. This involves introducing a new column, which we might label "Minutes," to house the converted values. In this new column, we will apply the defined formula, converting each duration entry into a total number of minutes. This step directly transforms the fractional representation into a usable, comparative numerical metric.

We begin by entering the conversion formula into the first cell of the new column, which is typically **C2**, assuming our duration data starts in B2. The formula remains:

=VALUE(B2*24*60)

After typing the formula into cell C2, press Enter to calculate the result for the first athlete. To apply this calculation to the entire dataset efficiently, click on cell C2, locate the small square handle (the fill handle) in the bottom-right corner of the cell, and click and drag the formula down to encompass all remaining cells in column C. This action automatically adjusts the cell reference (e.g., from B2 to B3, B4, and so on) for each row, providing the converted minute value for every corresponding duration entry. The resulting spreadsheet clearly displays the original duration alongside the newly calculated total minutes.

	A	B	C	D	E	F
1	Athlete	Duration	Minutes			
2	Andy	10:14:22	614.3667			
3	Bob	26:14:22	1574.367			
4	Chad	13:30:00	810			
5	Doug	12:00:00	720			
6	Eric	2:23:09	143.15			
7	Frank	1:14:15	74.25			
8	George	9:45:40	585.6667			
9	Henry	10:15:00	615			
10	Isaiah	15:00:24	900.4			
11	John	34:15:19	2055.317			
12						
13						
14						
15						
16						
17						
18						
19						

The newly populated **Minutes** column now presents the values from the **Duration** column as standardized total minutes. This transformation ensures that the data is ready for advanced calculations, charting, or any statistical analysis requiring decimal values rather than time formats. It is important to remember that the output of this formula is a decimal, accurately representing the seconds as fractions of a minute.

Deconstructing the Formula: Why Multiply by 24 and 60?

The effectiveness of the formula `=VALUE(B2*24*60)` hinges entirely on understanding how Excel manages time. As previously mentioned, Excel uses a serial number system where the integer

portion represents the date, and the decimal fraction represents the time of day. Crucially, in this system, the value **1.0** represents exactly one full 24-hour day. Therefore, a time duration, such as 12 hours, is stored as 0.5 (half a day).

To convert this fractional representation into usable units, we must perform dimensional analysis based on the Excel unit (1 day):

Step 1: Converting to Hours (Multiplying by 24): Since 1 unit in Excel equals 1 day, and there are 24 hours in a day, multiplying the cell value by 24 converts the fraction of a day into the total number of hours. If B2 = 0.5 (12 hours), then $B2 * 24 = 12$ hours.

Step 2: Converting to Minutes (Multiplying by 60): The resulting value from Step 1 is the total duration in hours. To convert hours into minutes, we multiply by the number of minutes in an hour, which is 60. Following the example, $12 \text{ hours} * 60 = 720$ minutes.

The final component, the **VALUE** function, is essential because time calculations in Excel often retain the time format, even after multiplication. Without the **VALUE** function, Excel might attempt to display the resulting 720 minutes as a bizarre time format, or potentially reformat the cell incorrectly. The **VALUE** function forces the output to be interpreted strictly as a generic number, guaranteeing the correct numerical display of total minutes.

Analyzing the Results and Common Pitfalls

Reviewing the calculated **Minutes** column provides clear evidence of the successful conversion. For instance, durations that include partial minutes are accurately represented by decimal numbers, offering a higher degree of precision than calculations performed only to the nearest whole minute. Examining a few specific conversions confirms the validity of the applied methodology:

A duration of **10 hours, 14 minutes, and 22 seconds** is converted to **614.3667** minutes ($10*60 + 14 + 22/60$).

A duration of **26 hours, 14 minutes, and 22 seconds** is converted to **1,574.3667** minutes ($26*60 + 14 + 22/60$). Note that this conversion works seamlessly because we ensured the duration format allowed for hours exceeding 24.

A duration of **13 hours, 30 minutes, and 0 seconds** is converted precisely to **810** minutes ($13*60 + 30$).

One common pitfall when performing time conversions is neglecting the initial formatting step. If the data entry in column B is not recognized as a time value (i.e., if the **Number Format** is set to General and the input is interpreted as text), the conversion formula will return incorrect or error

values. Another potential issue arises if the user forgets to use the **VALUE** function, which may lead to the output being displayed as a time format (e.g., 614.37 minutes might display as a time of day) rather than a simple number, despite the correct underlying calculation. Always ensure the column containing the formula results is formatted as **General** or **Number** to guarantee clear numerical output.

Further Resources for Time Calculations in Excel

Converting time durations to minutes is just one of many operations necessary when dealing with temporal data in spreadsheets. Excel offers a rich set of functions to manipulate dates, times, and durations for complex analysis. For those needing to perform related calculations, such as summing time durations, calculating time differences, or converting time into other units like total seconds or total hours, several built-in functions can be invaluable.

The following tutorials explain how to perform other common operations in Excel, building upon the foundational knowledge of the date-time serial system we have discussed:

Utilizing the `HOUR()`, `MINUTE()`, and `SECOND()` functions to extract components of a time value.

Employing the `SUMPRODUCT` function for summing large ranges of time durations correctly.

Formatting custom number formats beyond `:mm:ss` for specific industry requirements.