

# Excel: Convert Minutes to Hundredths

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Excel is undeniably one of the most powerful and ubiquitous tools utilized globally in fields ranging from corporate finance to academic research. It serves as an essential engine for sophisticated data analysis, detailed financial modeling, efficient data visualization, and complex calculations. For professionals requiring high precision in metrics like employee time tracking, project duration assessment, or manufacturing cycle analysis, Excel provides the indispensable capability to manage vast datasets quickly and accurately.

One common but often confusing task involves the manipulation of time, specifically converting measured duration--usually recorded in hours and minutes--into a numerical format that represents hours as a decimal, sometimes referred to as 'hundredths of an hour.' This conversion is critical because while time format (HH:MM) is easy for humans to read, it is unsuitable for standard mathematical operations like multiplication, division, or aggregation in formulas that require numerical input. Converting 15 minutes to 0.25 hours, for instance, allows for seamless payroll calculation or resource allocation planning based on hourly rates.

This article aims to provide a comprehensive guide to leveraging Excel's built-in functions to perform this essential conversion with ease and accuracy. We will delve into the underlying logic of how Excel handles time, dissect the conversion formula, and walk through a detailed, step-by-step example, ensuring that you can confidently integrate this method into your professional data management workflows. Mastering this technique is a significant step toward transforming raw duration data into actionable quantitative metrics.

## Understanding Excel's Internal Time Handling

Before executing any conversion, it is crucial to understand how Microsoft Excel fundamentally stores and calculates time. Unlike a standard numerical entry, when you input time--such as "10:15"--Excel does not store this as "ten hours and fifteen minutes." Instead, Excel treats dates and times as serial numbers, where the numerical value represents the fraction of a 24-hour day.

A full 24-hour day is represented by the integer 1. Therefore, 12 hours is stored as 0.5, and 6 hours is stored as 0.25. If 24 hours equals 1, then a single hour equals 1/24th of a day. This internal representation is why standard arithmetic operations fail when performed directly on time-formatted cells unless specific conversion steps are taken. When you enter a time value, Excel automatically applies a Time Format, ensuring that the visual display corresponds to the input, even though the underlying value is a decimal fraction of a day. The importance of this internal logic becomes clear when we select the appropriate conversion factor.

When our goal is to express a duration in terms of hundredths of an hour--meaning, a standard decimal representation where 15 minutes is 0.25--we need to scale that internal serial number back up to a unit that represents hours. Because the serial number is expressed as a fraction of 24 hours, the simplest and most efficient conversion method involves multiplying the serial number by

the total number of hours in the unit it represents, which is 24. This action effectively converts the decimal fraction of a day into the standard decimal representation of hours.

## Deriving the Conversion Factor: Why Multiply by 24?

The mathematical basis for converting Excel's time format to a decimal value representing hours is straightforward and rooted in the software's architecture. As established, Excel represents the elapsed time as a proportion of a single day (24 hours). For example, 30 minutes (or half an hour) is approximately 0.0208333... when expressed as a fraction of a 24-hour day ( $0.5 \text{ hours} / 24 \text{ hours} = 1/48$ ).

To convert this fractional day representation back into the number of hours, we must reverse the initial division that Excel performs. Since the entire time value is inherently divided by 24 (the number of hours in a day), multiplying the cell value by 24 isolates the numerical value representing the total hours, including the fractional minutes. This is the fundamental reason why **multiplication by 24** is the critical step in this conversion process. Without this step, standard calculations involving hourly rates or aggregating time across multiple employees would produce incorrect results.

If we had 10:15 (ten hours and fifteen minutes) entered into a cell, Excel calculates the internal serial number for this duration. When we apply the conversion formula, the multiplication by 24 transforms that fractional day number into 10.25. This decimal representation is universally understood and is easily integrated into further mathematical operations, such as calculating total labor costs or determining capacity utilization based on standard hourly units.

## The Essential Conversion Formula in Detail

The core mechanism for achieving this necessary conversion is encapsulated in a remarkably simple formula. Whether you are dealing with payroll, project management, or scientific data, this formula provides the required numerical precision. It assumes that the cell you reference contains the duration formatted as time (e.g., HH:MM or :mm).

You can use the following standard formula in Excel to convert minutes (contained within an Excel time format) to hundredths of an hour:

**=B2\*24**

This particular formula converts the time value stored in cell **B2**, which is internally a fraction of a day, into a **decimal** value representing the total hours, including the minutes expressed as hundredths.

For instance, if cell **B2** contains the duration **10:15**, which represents 10 hours and 15 minutes, then this formula executes the conversion and returns the precise decimal value **10.25**. This value accurately represents 10 and one-quarter hours, ready for further calculation.

The following practical scenario illustrates how to apply this formula across a dataset effectively.

### Example: Step-by-Step Implementation of Time Conversion

To fully grasp the application of the conversion formula, let us walk through a typical scenario involving tracking athletic performance times. We start with raw time data collected for various athletes, where the duration is recorded in the standard Excel time format (Hours:Minutes). Our objective is to convert these durations into a purely numerical decimal format for easier comparative analysis.

First, we organize our raw data in Excel. We enter the names of the athletes in Column A and their respective finish times (duration) in Column B. It is important to ensure that the times entered in Column B are recognized by Excel as time values, typically displayed in the HH:MM format.

We will use the following dataset for this practical demonstration, which shows the time it took for various athletes to complete a specific task:

	A	B	C	D	E	F
1	<b>Athlete</b>	<b>Time</b>				
2	Andy	10:15				
3	Bob	4:29				
4	Chad	2:22				
5	Doug	2:45				
6	Eric	3:50				
7	Frank	4:30				
8	Greg	6:01				
9	Henry	5:59				
10	Isaac	5:45				
11	John	2:15				
12	Kendall	4:09				
13	Luke	4:12				
14						
15						
16						
17						

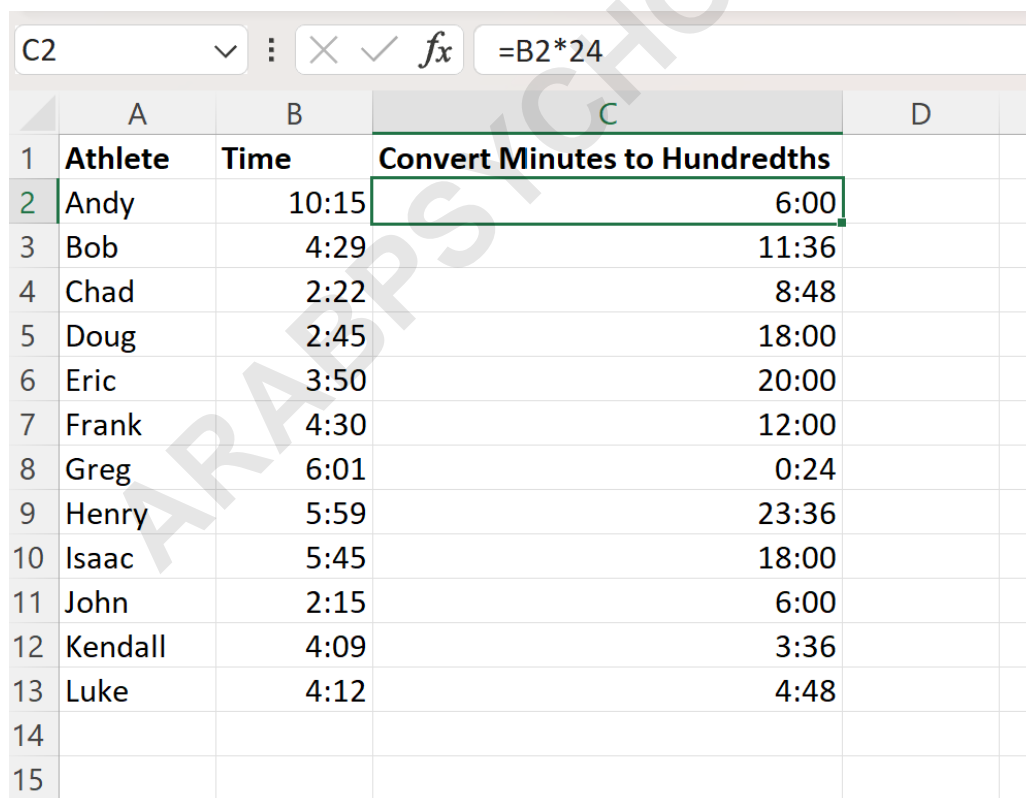
Once the data is correctly entered, we proceed to Column C, where the converted decimal results will be displayed. The process begins by applying the conversion formula to the first data point in the list. This formula references the time value in the corresponding row of Column B.

Next, we accurately type the following formula into cell **C2**. This action initiates the conversion process, taking the time value from cell **B2** and scaling it by 24 to get the decimal equivalent in hours:

**=B2\*24**

After entering the formula into C2, we apply it to the rest of the dataset. Excel's auto-fill feature significantly streamlines this process. By clicking and dragging the fill handle (the small square at the bottom-right corner of cell C2) down the column, the formula is dynamically adjusted for each subsequent row, automatically referencing B3, B4, and so on, thereby converting all time values instantly.

We then click and drag this formula down through the remaining cells in Column C, ensuring that every duration is converted:



The screenshot shows an Excel spreadsheet with the following data:

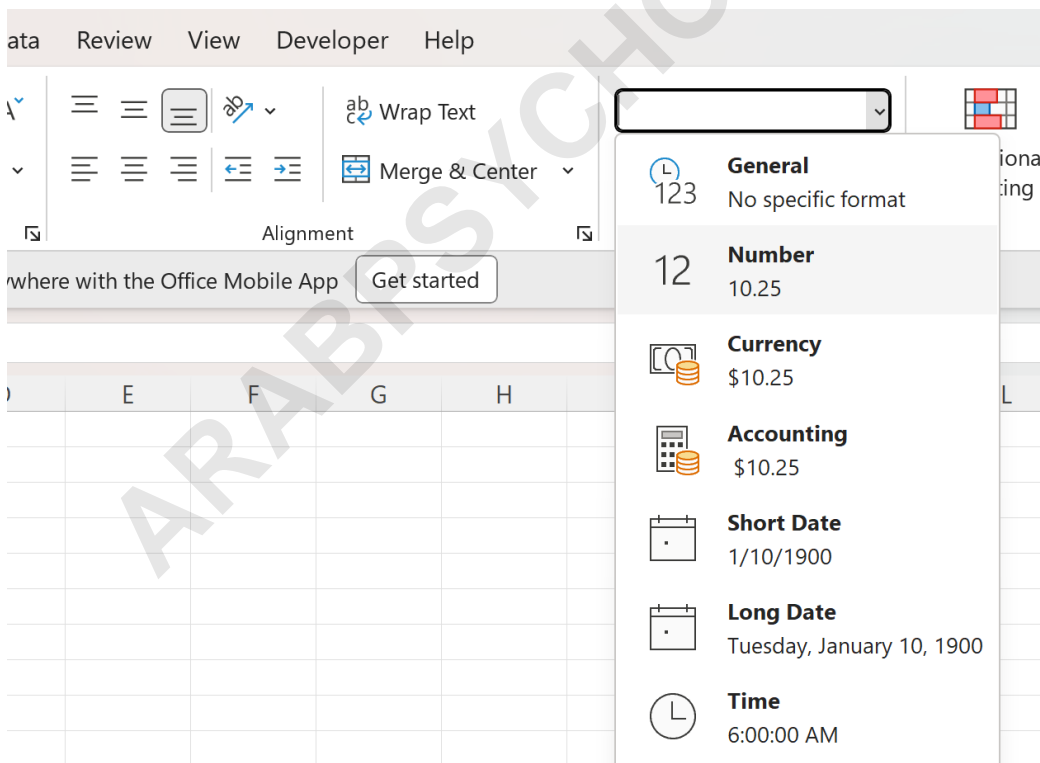
	A	B	C	D
1	<b>Athlete</b>	<b>Time</b>	<b>Convert Minutes to Hundredths</b>	
2	Andy	10:15	6:00	
3	Bob	4:29	11:36	
4	Chad	2:22	8:48	
5	Doug	2:45	18:00	
6	Eric	3:50	20:00	
7	Frank	4:30	12:00	
8	Greg	6:01	0:24	
9	Henry	5:59	23:36	
10	Isaac	5:45	18:00	
11	John	2:15	6:00	
12	Kendall	4:09	3:36	
13	Luke	4:12	4:48	
14				
15				

## Crucial Step: Formatting the Output to Decimal Number

A critical detail that often catches users off guard is Excel's default behavior regarding formatting. Even after applying the multiplication by 24, which mathematically returns a decimal number, Excel often retains the original Time Format for the resulting cell, leading to misleading output. For instance, instead of seeing 10.25, you might initially see 10:30 (or a similarly incorrect time). This occurs because Excel assumes that if the input cell was time, the output should also be time, even though the underlying value is now too large to be a valid time within a single day.

To rectify this, the resulting cells must be explicitly formatted as a general number or, preferably, a number with specific decimal places. This step ensures that the value is displayed as the intended decimal representation, making it usable for subsequent calculations and visually clear to the end-user. This change is purely cosmetic, but essential for accurate interpretation.

To correctly display the results using a standard numerical format, first highlight the entire range of converted cells, which in our example is **C2:C13**. Navigate to the **Home** tab on the ribbon, locate the **Number Format** dropdown menu (usually displaying "Custom" or "Time"), and then select the **Number** option.



## Interpreting the Final Decimal Results

Once the number format is applied, the values in Column C will instantly transform, providing the

desired output--the duration expressed in hours, utilizing hundredths for the fractional component. These converted figures are now entirely numerical and suitable for any mathematical aggregation or calculation required for reporting or analysis. The decimal value accurately reflects the total time spent, where the integers represent the full hours and the decimals represent the minutes converted into hundredths of an hour.

For example, 30 minutes, which is half an hour, correctly converts to 0.50. 45 minutes converts to 0.75. If you require greater precision than two decimal places (i.e., true hundredths), you can easily adjust the number formatting to display more places, which is often necessary when dealing with very short or highly detailed time measurements.

Following the application of the number format, the times in column C are now accurately shown in a decimal format, ready for analysis:

	A	B	C	D
1	<b>Athlete</b>	<b>Time</b>	<b>Convert Minutes to Hundredths</b>	
2	Andy	10:15	10.25	
3	Bob	4:29	4.48	
4	Chad	2:22	2.37	
5	Doug	2:45	2.75	
6	Eric	3:50	3.83	
7	Frank	4:30	4.50	
8	Greg	6:01	6.02	
9	Henry	5:59	5.98	
10	Isaac	5:45	5.75	
11	John	2:15	2.25	
12	Kendall	4:09	4.15	
13	Luke	4:12	4.20	
14				
15				
16				
17				

Reviewing the dataset demonstrates the precision achieved by the conversion formula:

10 hours and 15 minutes is equivalent to a numerical value of **10.25** hours.

4 hours and 29 minutes converts precisely to **4.48** hours (due to rounding of 29/60).

2 hours and 22 minutes converts precisely to **2.37** hours (due to rounding of 22/60).

This numerical output provides the foundation for powerful quantitative analysis.

## Common Applications and Benefits of Decimal Time

The conversion of time to decimal format is not merely an academic exercise; it is a fundamental requirement in numerous professional fields. The primary advantage of using decimal hours over standard Time Format is the simplification of arithmetic, particularly when dealing with payroll, project budgeting, and resource allocation.

In the context of **Payroll and Accounting**, hourly wages must be calculated precisely. If an employee works 7 hours and 45 minutes, a payroll system cannot easily multiply 7:45 by an hourly rate. By converting 7:45 to 7.75 hours, the calculation becomes a simple multiplication: Rate x 7.75. This conversion eliminates the potential for human error inherent in manual calculation systems and ensures compliance with labor laws requiring precise time tracking. Furthermore, most modern Enterprise Resource Planning (ERP) systems require time inputs in decimal format.

For **Project Management and Capacity Planning**, calculating accurate resource utilization is paramount. If a project phase took 5 hours and 10 minutes, knowing that this translates to 5.17 hours (rounded) allows managers to aggregate total time spent across hundreds of tasks and accurately forecast future resource needs. The ability to use standard functions like SUM, AVERAGE, and standard deviation directly on the time data, without complex nested time functions, dramatically improves the efficiency of data analysis and reporting.

## Troubleshooting and Handling Minutes-Only Input

The primary formula,  $=B2*24$ , assumes that cell B2 contains a time format (HH:MM) that Excel recognizes as a fraction of a day. However, users occasionally encounter scenarios where the data is simply recorded in raw minutes (e.g., 90 for 90 minutes) rather than an Excel time format. In this case, multiplying by 24 would produce an entirely incorrect result, as the input is not a fractional day.

If your input cell (B2) contains only the total number of minutes, the appropriate conversion to decimal hours requires dividing the minutes by 60 (the number of minutes in an hour). The formula would simply be:  $=B2/60$ . For example, if B2 contains 90 (minutes),  $=90/60$  returns 1.5 (hours). This distinction between input data types--Excel Time Format vs. Raw Minutes--is essential for selecting the correct conversion formula.

Another common issue is ensuring the source data is correctly recognized as time. If an entry like "10:15" is inadvertently stored as text, the  $=B2*24$  formula will result in a **#VALUE!** error. Always verify the cell format of the source column (Column B in our example) to confirm it is set to a Time or Custom format that includes hours and minutes. Correcting text entries to valid time entries (e.g., re-typing them or using the Text to Columns feature for conversion) is the necessary prerequisite for successful calculation.

## Conclusion: Mastering Time Management in Excel

The ability to convert time durations from the standard hours and minutes format into decimal hours is a cornerstone of advanced data manipulation within Excel. This technique, relying on the simple yet powerful multiplication by 24, bridges the gap between human-readable timekeeping and machine-calculable numeric data. By understanding Excel's underlying serial number system and applying the correct formatting post-calculation, users can transform cumbersome time entries into precise, actionable numerical values.

This skill is vital for maintaining high standards of accuracy and efficiency in data processing, especially in fields dependent on precise time tracking like payroll processing, project management, and scheduling. By following the detailed steps outlined in this guide--from entering the data and applying the `=B2*24` formula to ensuring the final output is correctly displayed as a **Number**--you can confidently manage complex time calculations and derive meaningful insights from your duration data. Mastering this method ensures that your time-based calculations are always robust, accurate, and ready for integration into larger reports and financial models.

You can use the following formula in Excel to convert minutes to hundredths:

**=B2\*24**

This particular formula converts the minutes in cell **B2** into a decimal with hundredths.

For example, if cell **B2** contains **10:15** to represent 10 hours and 15 minutes, then this formula will return **10.25** to represent 10.25 hours.

The following example shows how to use this formula in practice.

## Example: Convert Minutes to Hundredths in Excel

First, let's enter the following dataset in Excel that shows the time (in hours and minutes) that it took for various athletes to finish some task:

	A	B	C	D	E	F
1	<b>Athlete</b>	<b>Time</b>				
2	Andy	10:15				
3	Bob	4:29				
4	Chad	2:22				
5	Doug	2:45				
6	Eric	3:50				
7	Frank	4:30				
8	Greg	6:01				
9	Henry	5:59				
10	Isaac	5:45				
11	John	2:15				
12	Kendall	4:09				
13	Luke	4:12				
14						
15						
16						
17						

Next, we can type the following formula into cell **C2** to convert the minutes in cell **B2** into a decimal with hundredths:

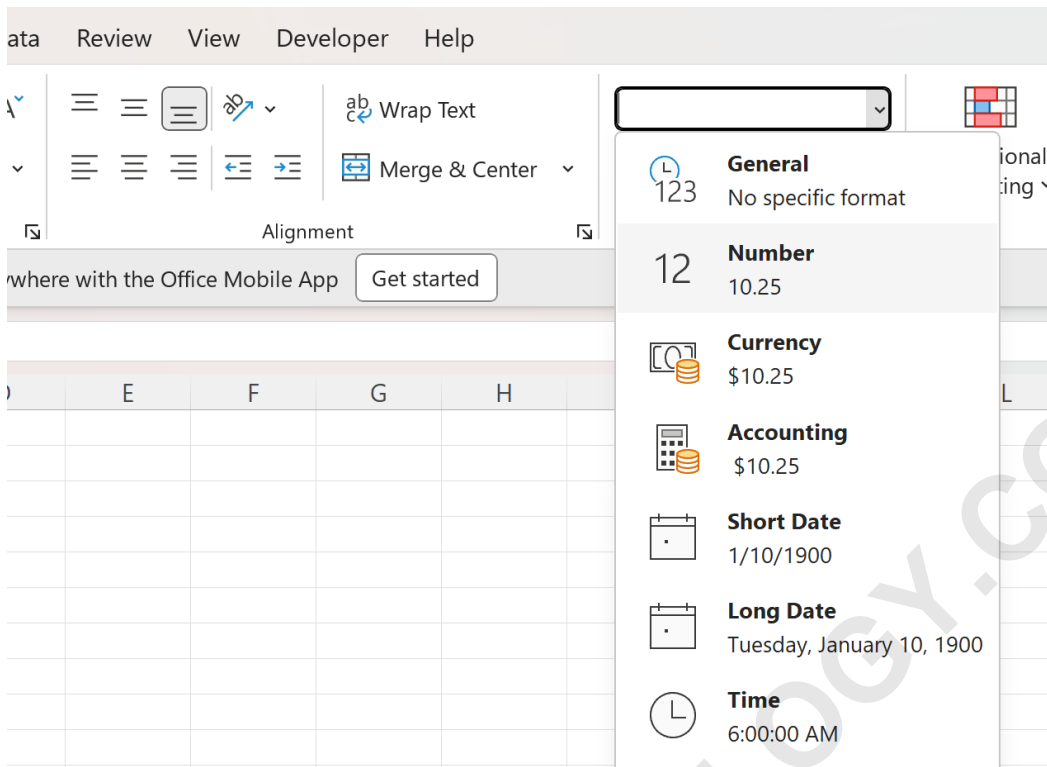
**=B2\*24**

We can then click and drag this formula down to each remaining cell in column C:

	A	B	C	D
1	<b>Athlete</b>	<b>Time</b>	<b>Convert Minutes to Hundredths</b>	
2	Andy	10:15	6:00	
3	Bob	4:29	11:36	
4	Chad	2:22	8:48	
5	Doug	2:45	18:00	
6	Eric	3:50	20:00	
7	Frank	4:30	12:00	
8	Greg	6:01	0:24	
9	Henry	5:59	23:36	
10	Isaac	5:45	18:00	
11	John	2:15	6:00	
12	Kendall	4:09	3:36	
13	Luke	4:12	4:48	
14				
15				

By default, Excel will still use a time format.

To instead use a number format, highlight the cells in the range **C2:C13**, then click the **Number Format** dropdown menu from the **Home** tab along the top ribbon, then click **Number**:



The times in column C will now be shown in a decimal format:

	A	B	C	D
1	<b>Athlete</b>	<b>Time</b>	<b>Convert Minutes to Hundredths</b>	
2	Andy	10:15	10.25	
3	Bob	4:29	4.48	
4	Chad	2:22	2.37	
5	Doug	2:45	2.75	
6	Eric	3:50	3.83	
7	Frank	4:30	4.50	
8	Greg	6:01	6.02	
9	Henry	5:59	5.98	
10	Isaac	5:45	5.75	
11	John	2:15	2.25	
12	Kendall	4:09	4.15	
13	Luke	4:12	4.20	
14				
15				
16				
17				

10 hours and 15 minutes is equal to **10.25** hours.

4 hours and 29 minutes is equal to **4.48** hours.

2 hours and 22 minutes is equal to **2.37** hours.

And so on.

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